Executive Committee Meeting
6:00 pm, November 22, 2008
Marriott Rivercenter Hotel

Attendees: Steve Pope, Lex Smits, Phil Marcus, Ellen Longmire, Juan Lasheras, Anette Hosoi, Laurette Tuckerman, Jim Brasseur, Paul Steen, Minami Yoda, Martin Maxey, Jean Hertzberg, Monica Malouf, Ken Kiger, Sharath Girimaji, Krishnan Mahesh, Gary Leal, Bill Schultz, Andrea Prosperetti, Julian Domaradzki, Jim Duncan, John Foss, PK Yeung, Ann Karagozian, Lance Collins, Kimberly Hill, Peggy Holland, Jason Bardi (AIP)

Note: Attachments related to agenda items follow the order of the agenda and are appended to this document.

Key Decisions

The ExCom voted to move $100k of operating funds to an endowment for a new award. The ExCom voted that a new name (not Otto Laporte) should be chosen for this award. In the coming year, the Award committee (currently the Fluid Dynamics Prize committee) should establish the award criteria, making sure to distinguish the criteria from those associated with the Batchelor prize. The committee should suggest appropriate wording for the award application and make a recommendation on the naming of the award.

The ExCom voted to move Newsletter publication to the first weeks of June and December each year.

The ExCom voted to continue the Ad Hoc Committee on Media and Public Relations for two more years (through 2010). The ExCom voted that $15,000 per year in 2009 and 2010 be allocated for Media and Public Relations activities. Most of these funds would be applied toward continuing to use AIP media services in support of news releases and Virtual Pressroom activities related to the annual DFD meeting.

Meeting Discussion

1. Opening Remarks (Lex Smits, Chair):

Introduction of newly elected members:

Ann Karagozian, Vice Chair
Lance Collins, Member at Large
Stefan Llewellyn Smith, Member at Large (could not attend due to flight delays)

2. Approval of minutes of the May 2008 Teleconference

3. Reports on Annual Meetings

a. 2008 Meeting, San Antonio (Sharath Girimaji) (see attached budget)

Attendance: 1500 participants pre registered, and most registered 'early' as members so that revenue was slightly down (on this date) compared with 2007. Revenue from exhibit booths ($13k vs. $24k in 2007) and local universities ($7k vs. $20k) was lower than the previous year. Attendance of 1650 was projected. (**Update: total meeting attendance was actually 1770**).

The Local Organizing Committee led by Harry Swinney and Frank Chambers planned to bus 30-40 students and young researchers from Mexico to attend the meeting. Halliburton underwrote bus rental, and a donation from Schlumberger should cover the lodging costs.
Lex Smits and the ExCom thanked Sharath for his efforts in organizing.

b. 2009 Meeting, Minneapolis (Krishnan Mahesh) (report attached below)
Due to recent increases in attendance, it was decided to hold the meeting at the Minneapolis Convention Center and the reception at the neighboring Hilton Hotel.
Contracts have been signed with the Hilton (600-640 rooms reserved) and Doubletree (100 rooms reserved) hotels. The organizers will attempt to renegotiate to lower Hilton room rates in February based on the state of the economy.
An overall budget was estimated based on paid attendance of 1500 with 3% increase in fees for regular attendees (but no increases for student attendees). Sharath recommended an additional increase in fees based on the changing balance between early and late registrants. The ExCom recommended that the local organizers consider this suggestion and propose the cost per attendee before the May Telecon.

c. 2010 Meeting, Long Beach (Julian Andrjez Domaradzki) (report attached below)
The Long Beach convention center has been booked and contracts have been signed with the Hyatt, Westin, and Renaissance hotels.
The reception will be held at the Long Beach Aquarium, which is within walking distance of the meeting site, with a contract to be negotiated soon.

Flights: Jet Blue goes to Long Beach, but most participants are expected to fly into LAX.
The LOC plans to market to Asian participants.

d. 2011 Meeting, Baltimore (Andrea Prosperetti) (report attached below)
A contract has been signed with the Baltimore Marriott Waterfront Hotel for meeting space as well as 600 rooms/night for Sat/Sun/Mon. Neighboring hotels are under consideration for additional contracts.

If attendance is ~1700 or greater, the number of large meeting rooms may be insufficient.

Action Item: Peggy and Andrea will check out the hotel again in January. They will also inspect an additional hotel across the street, and continue to consider the possibility of the Baltimore Convention Center which is currently booked for the meeting dates.

A preliminary agreement has been made with the National Aquarium to hold the reception.

e. What about 2012?
Proposals are encouraged. Juan Lasheras suggested that UCSD may propose.

4. Treasurer's Report (Ellen Longmire) (report attached below)
a. The tables in Appendix G give account balances in March for the last several years and the account balances as of October 31, 2008. The data from March can be compared reliably from year to year because all meeting and award expenses have cleared by that time.
b. The Fluid Dynamics Prize and Acrivos Award accounts are continuing to increase modestly each year after payment of awards and expenses.
c. The DFD operating account has increased each year since 2005, and currently includes $413,000 available for expenditure, so the balance is very healthy. Some committee

members recommended that, given this positive balance, we should continue to keep our meeting registration fees as low as possible.

5. Report on NSF Funding (Bill Schultz) (slides attached below)
Bill reported that he spent a budget of $9.1M in 2008, representing a 45% increase over the previous year. Significant parts of these funds came from interdisciplinary programs and special opportunities within NSF. He noted that good public relations highlights help increase fluid dynamics exposure. Also, he recommended that we hold more workshops which often can lead to solicitations or special opportunities down the line.

5b. Division Councillor's Report (Jim Brasseur): (report attached below)
Jim noted the release to Congress of the APS study group report on Energy Efficiency.
Jim will propose formally in February that the APS Council meeting coincide with the DFD meeting in Long Beach in 2010.

6. Brief Reports from other Committees

Nominating Committee (Patrick Weidman): (report attached below)

Frenkiel Award Committee (Sandra Troian): (report attached below)
The winner was chosen from a pool of 45 eligible articles in Physics of Fluids. It was noted that the articles spanned a wide range of areas and that only a small percentage were experimental in nature.

Fluid Dynamics Prize Committee (Martin Maxey):
The winner was chosen from a pool of 14 nominees (9 nominees were U.S. based researchers).

Acrivos Award (Paul Steen): (report attached below)
The winner was chosen from a pool of 10 nominees. Paul suggested that we could improve the uploading of nominee info by using a web based system.

Action Item: Ken Kiger will check with APS central on this possibility.

Program Committee (Phil Marcus): (report attached below)
Six minisymposia were chosen from 9 proposals. One meeting room was dedicated for all of the minisymposia at San Antonio.
DFD was assigned 2.5 invited sessions for the March 2009 meeting. The 'half' allotment required a session co-sponsor from another division. For 2009, P.K. Yeung will chair that session which will be co-sponsored by Div. of Computational Physics.

Fellowship Committee (Juan Lasheras): (report attached below)
Winners were chosen from 33 nominees (7 carryover nominees). One third of the nominees were based outside of the U.S. Eight nominations will be carried over to 2009.
The web submission and distribution procedure worked well.
Juan felt that we should make a stronger effort to increase the number of nominees. It was recommended that retiring FD Prize committee members suggest names for future fellowship nominations.

Newsletter (Juan Lasheras):

The newsletter is now purely electronic which reduces formatting work and expenses. Juan proposed that we should shift newsletter publication to the first weeks of December and June. (This motion was carried by a vote).

Publications and Media Committee (Jean Hertzberg): (report attached below)

Action item: The committee will recommend appropriate invited speakers to submit articles to Physics Today.

High school teacher workshop organized by Karen Flack had 16 attendees, and the Fluids Education Workshop organized by Jean H. and John Cimbala had 25 attendees.

Action item: Jean will contact the Program Committee to see whether contributors to the Education Minisymposium could be exempted from the 'one talk' rule.

Videos (Jim Duncan): (report attached below)

Video entry for the Gallery of Fluid Motion was done using the eCommons process, which required mpeg-2 format. The submission process went well, and it was suggested that the same procedure be followed in future meetings.

External Affairs Committee (Kimberly Hill): (report attached below)
A total of 44 travel grants were offered based on a pool of 64 applicants (1 undergrad, 8 researchers/faculty, and the rest graduate students) . The number of applicants was decreased from the previous year, possibly because of the second travel award program organized by the local organizing committee for Mexican researchers.
The grants were funded by an NSF grant of $20,000 obtained by Michael Plesniak and $15,000 provided by DFD.

In recognition of the 50th Anniversary of the founding of *Physics of Fluids*, AIP made a recurring gift of $10,000 per year for five years to DFD in support of travel grants to our annual meeting.

Action item: Mike Plesniak (2009 committee chair) should speak to Ken Kiger about developing and adopting web based application forms.

DFD website (Ken Kiger):
Ken noted that Russ Donnelly and Jim Wallace wrote a DFD history which is posted online.
He will integrate DFD-related press releases into the website.

It was suggested that we should attempt to put all award nomination processes online.

Action item: Ken will work on this for all awards and travel awards.

USNCTAM (John Foss): (report attached below)

Ad hoc Committee on Cyberfluids (PK Yeung): (report attached below)
The committee was formed in May, 2008 with a goal of advocating for fluid dynamics opportunities within cyber-related challenges. They will run a joint session at the 2009 March meeting jointly with DCOMP (see above) and would like to organize a new workshop (with NSF support) in 2009.

7. Discussion on travel support for Award and Prize winners (Lex Smits)
This discussion was postponed until May, 2009 in order to focus on other agenda items.

8. Ad Hoc Committee on Media and Public Relations (Jim Brasseur/Jim Duncan/Jason Bardi) (report attached below)

The committee was authorized to spend $15k on media/pub relations in 2009 and 2010 with an objective to increase fluid dynamics funding (see 'Decisions' above).

The committee stressed the need to gather data, understand historic changes in funding, and extrapolate. A funding questionnaire is now posted on the DFD website.

For news releases, Jim Duncan and others looked at the abstract and Gallery of Fluid Motion submissions to select topics: 15 reviewers looked at 100 abstracts each, seeking exceptional scientific discoveries, consumer relevance, fun, and exciting topics. Based on these recommendations and the input of Jason Bardi, 24 abstracts and 9 videos were selected as topics for the virtual press room and for release to the press. Two topics were picked up by local and national reporters.

NSF will also take the news releases, work on them, and distribute to web and news services. Jim B would like to broaden our publicity efforts beyond our meeting, for example by working with NSF. Following our November meeting, a panel with webcast was planned on fluid dynamics in the health field. Jim proposed that we should have one of these panels every year on a different theme.

It was noted that AIP has helped with news releases and publicity activities at the March and April meetings for years: reporters are at the meetings all week and tend to cover stories. Press conferences are held every day.

9. Discussion on new DFD prize (Martin Maxey) (report attached below)
The financing and particulars of a new prize were discussed, and several motions were passed (see 'Decisions' above).

10. Remarks from Vice Chair (Phil Marcus):
Phil thanked Lex Smits for his service to the division.
He noted that the APS Convocation is Feb 28, 2009 and encouraged ExCom members to participate in the congressional visits set up by APS on the day before.
He needs recommendations for new committee members in 2009.
Phil will appoint a Committee on Committees in 2009 to address the following questions: How should we integrate the activities of our Ad Hoc committees into the existing committee structure? Do we need to redefine any committees? How should the committees be populated?
In the future, we should consider members of Congress (several are physicists or engineers) as invited speakers at the DFD meeting.

The meeting was adjourned at approximately 9:35 p.m.

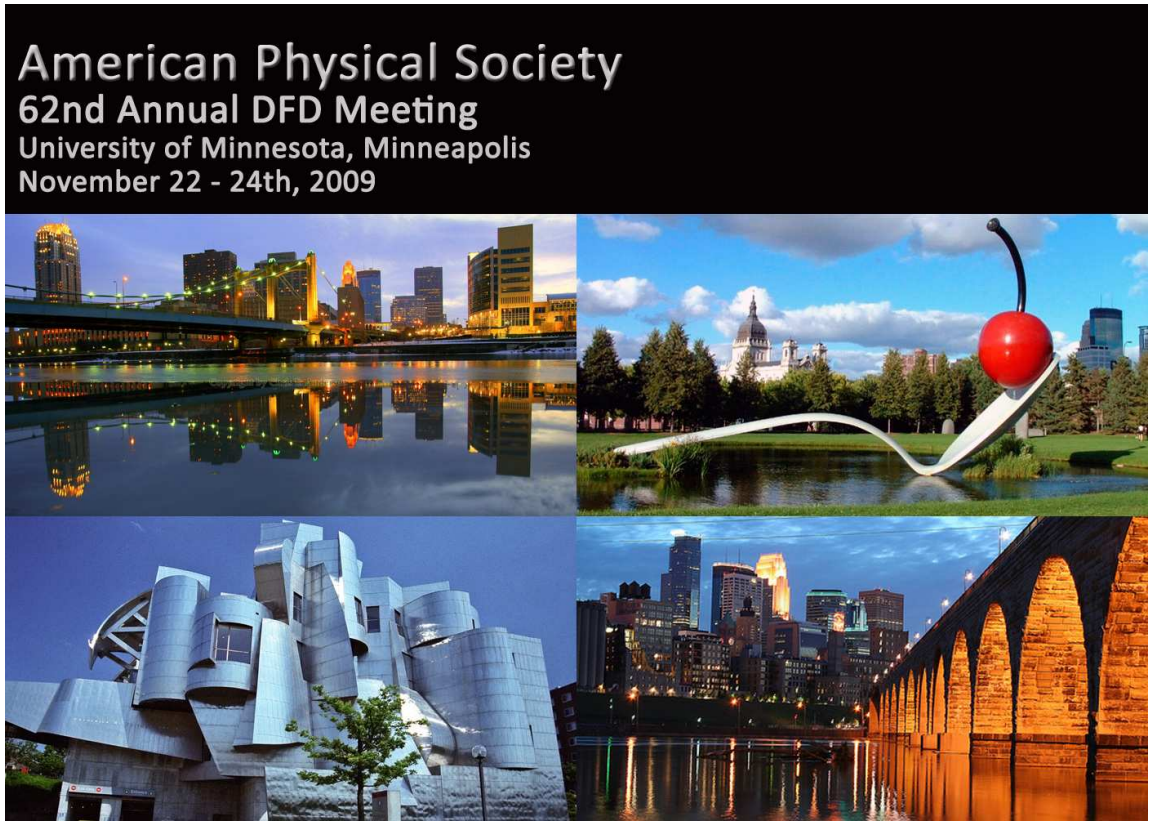
Projected Budget for San Antonio, prior to meeting start.

APS 2008 Budget						
	Projected based on paid attendece of:		1500			
Income						
Registration	Number	Fee	Projected Cost	Projected 4/08	Actual Cost	
Early APS	525	$325				
Early non-APS	90	$550				
Early Student	470	$155				
Early Retired	13	$150				
Late APS	162	$385				
Late non-APS	61	$605				
Late Student	147	$185				
Late Retired	4	$180				
total	1471					
Registration Income:			421926		$ 389,340	To Date
	Room Nights	Income/rm				
Housing Income	2178	$6	13068		$ 14,000	
Bag Insert			600		$ 970	
Booths	Number	Fee				
	12	$1,800	21600		$ 13,000	
Minus Membership	Number	Cost				
Full membership	151	$111	15633		$ 15,633	APS provides
Student members	350	$10	$3,500		$ 3,500	APS provides
Net Income:			$ 437,461		$ 397,207	
Expenses:						
San Antonio Convention Center Rental			$21,000		$ 2,000	
Attorney Fees			N/A		$ -	
Conference Services and materials			$3,300		$ 5,600	
(internet and telephone access)						
Passakey Housing Fee		$6.00	$4,800		$ -	
Signage/Furniture/Booths			$12,000		$ 12,000	

Additional Design Work		$1,500	$	-	
Registration		$34,000	$	34,000	
Credit Card Fees		$10,000	$	13,000	
Registration Travel Expenses for Management		$2,500	$	2,500	
Video Gallery A/V (Included in AV and timing)		$0	$	-	
A/V and Timing		$70,000	$	70,000	
Highschool Program		$2,000	$	-	
Hotel (invited Speakers/Staff)		$2,000	$	3,000	
Food and Beverage					
Breaks	$53.00	$71,550	$	71,000	
Exec Dinner		$2,700	$	3,200	
Student luncheon	$22.00	$2,772	$	2,494	
Reception	$52.00	$70,200	$	80,000	
Reception Entertainment		$4,000	$	-	
Buses to Reception comes out of Entertainment Budget					
NSF Lunch		$0	$	-	
Box lunches/Breakfast (staff)		$2,000	$	-	see breaks
Water		$800	$	-	see breaks
Printing and Promotion					
BAPS		$50,000	$	50,000	
Synopsis		$9,500	$	10,000	
Bags		$3,000	$	4,676	
Postcards, posters		$1,500	$	600	
Meeting management:					
Meetings and More 2007 meeting fee		$40,500	$	40,500	
2009-2010 meeting costs charged to 2007		$2,000	$	2,000	
Web site and signage design		$2,500	$	500	
Promotional mailing		$0			
Security (60 hours at $17/hour)		$2,000	$	2,900	
Paramedic (30 hours at $18/hr)		$700	$	700	
Miscellaneous		$1,500	$	1,000	
(tips, office supplies, coat check, sorters mtg printer)					
Total Expenses:		$430,322	$	411,670	
Net		$7,139.15	$	(14,463)	

APS-DFD 2009 Meeting

University of Minnesota, Minneapolis



Status report to Executive Committee, November 22, 2008

Background

Site visits: Monica Malouf August 23, 2006
Peggy Holland May 19, 2008

Organizing committee

- 15 fluids faculty from Aero., ME, ChemE, EE/CS, CE

Meeting venue

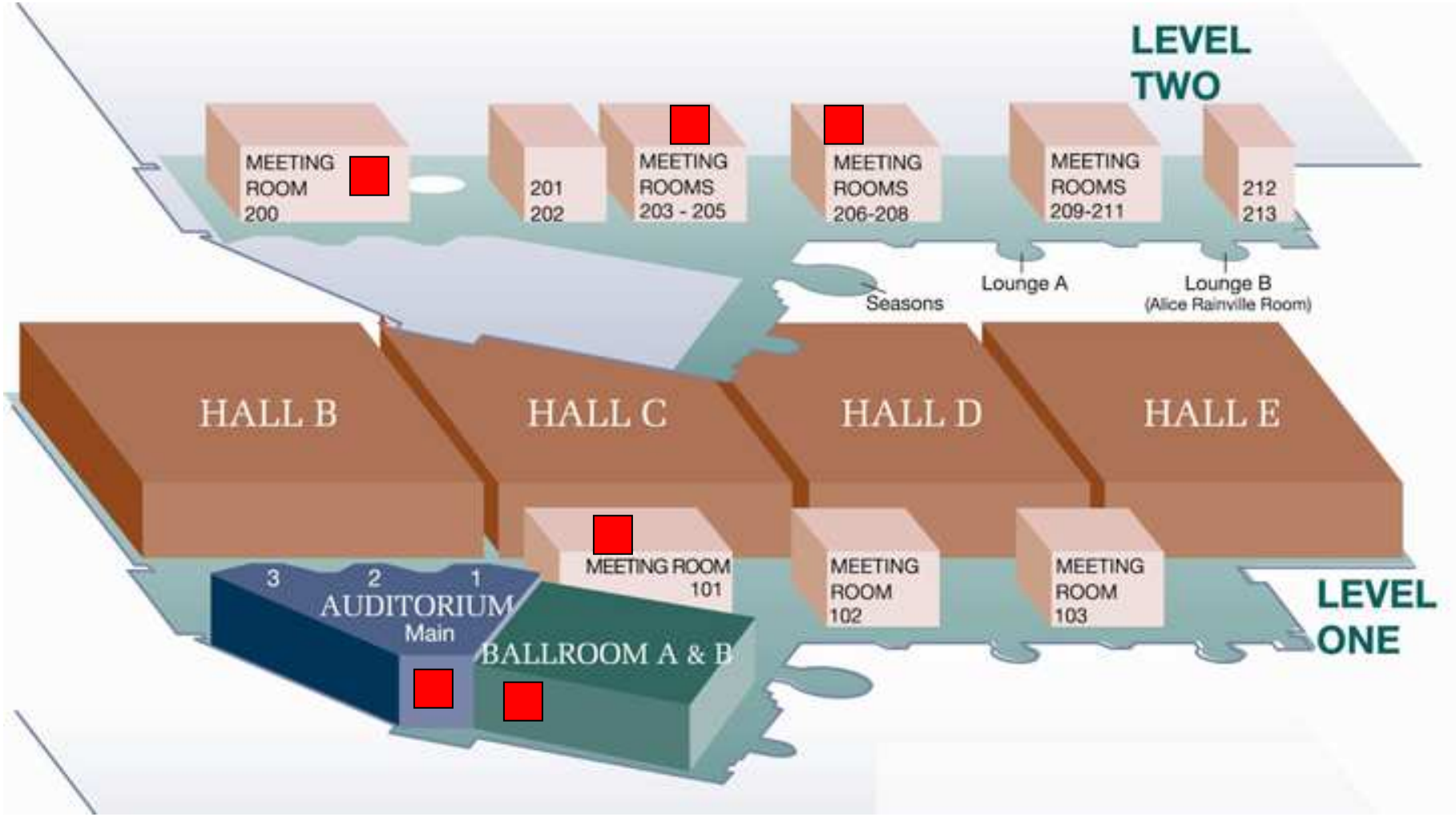
- Minneapolis Convention Center in downtown Minneapolis

Reception venue

- Minneapolis Hilton

- Note meeting venue changed to Convention Center following Peggy's visit

Convention Center



- Meeting on Levels 1 and 2; rooms indicated with red squares.

Meeting overview

- 20 parallel sessions (expandable)
- All rooms on 1nd and 2nd levels
- Seating capacity: 10 rooms with 125 people 6 with 175
  2 with 300 2 with 600
- Awards ceremony in Main Auditorium (seats 2143 expandable to 3433)
- Exhibitors, galleries and breaks in Ballroom A (18000 sq ft.)

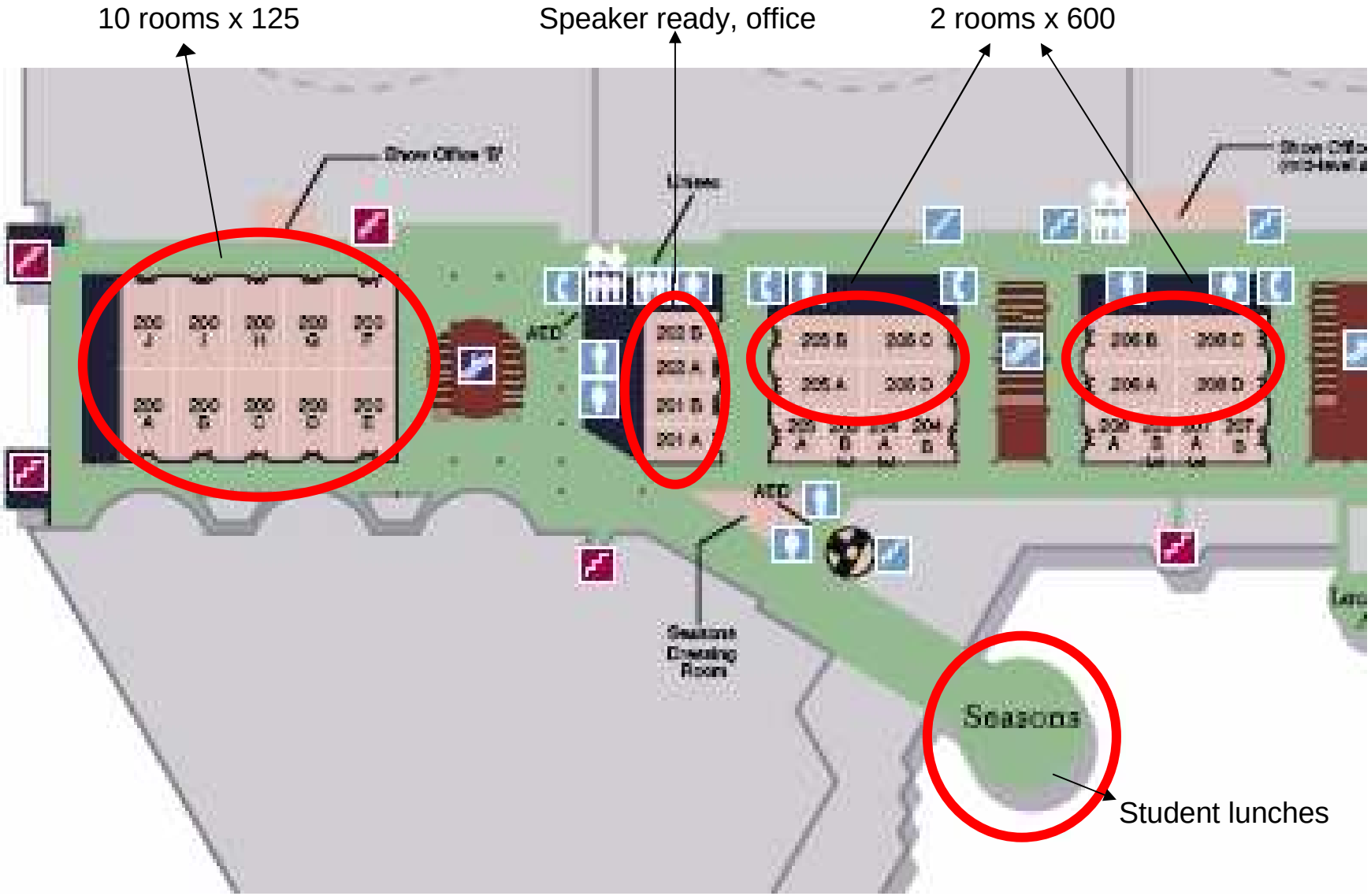
Accomodation (contracted)

- Minneapolis Hilton: Block of 600 – 640 rooms reserved
  Room rates: $148 + 13.15% state tax per night single/double
- Doubletree (0.1 miles): Block of 100 rooms reserved
  Room rates: $129 + 13.15% state tax per night single/double

Additional accomodation (no contract)

Holiday Inn (0.1 miles), Residence Inn, Marquette (0.2 miles)

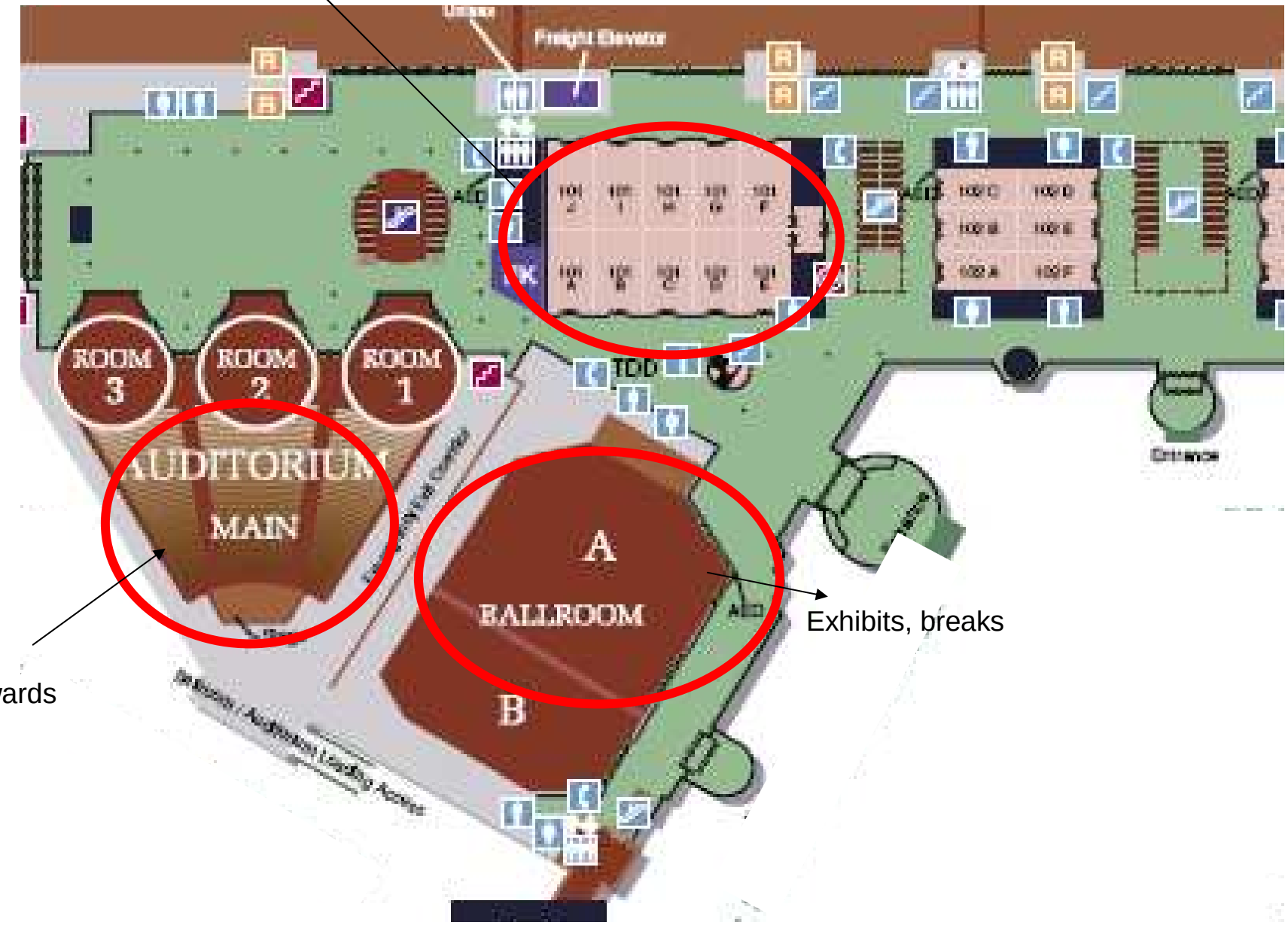
Level 2 layout



Level 1 layout

6 rooms x 175

2 rooms x 300



Exhibits, breaks

Awards

Awards ceremony in Auditorium

Hilton Minneapolis: Primary hotel & reception venue

Lobby

Outside Grand Ballroom

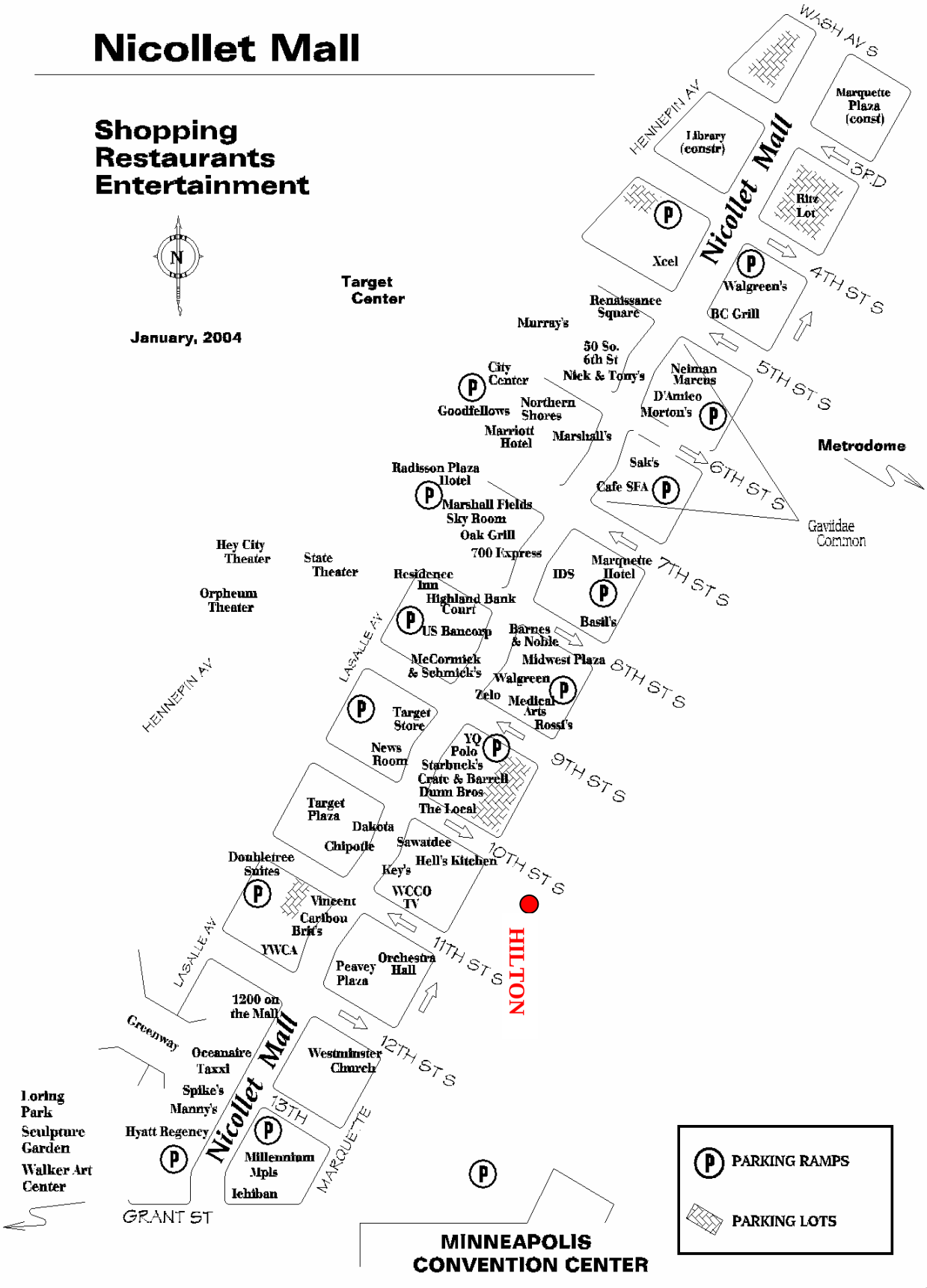
25000 sq. ft

Rec center

Skyway to Convention Center

Nicollet Mall

Shopping
Restaurants
Entertainment



Projected Income

(based on paid attendance of 1500 & San Antonio figures)

Registration	**Number**	**Amount**	**Total**
Early APS member	502	$340	
APS non-member	78	$560	
student/retired	566	$155	
Late APS member	130	$400	
APS non-member	61	$620	
student/retired	164	$185	
Registration income			**$422,226**
Housing revenue			**$ 1,944**
Sponsorship			**$ 25,000**
Booth revenue			**$ 22,200**
Memberships & waivers			**-$ 19,133**
TOTAL INCOME			**$452,237**

Projected Expenses

(based on paid attendance of 1500 & San Antonio figures)

Convention center rental	$24,700
Conference Services & Materials	$5,600
Signage/Furniture/Booths	$12,800
Registration	$46,500
Audio Visual & Timing	$70,000
Food & Beverage	$159,972
Printing & Promotion	$66,075
Meeting Management	$44,600
Miscellaneous	$12,350
TOTAL EXPENSES	**$442,597**

Additional information

Convention center website:

http://www.minneapolisconventioncenter.com/

Hilton website:

http://www1.hilton.com/en_US/hi/hotel/MSPMHHH/index.do

Meeting website:

http://www.dfd2009.umn.edu

Meeting banner

Report from the 2010 organizing committee
for the Executive Committee Meeting, November 22, 2008
Prepared by Julian Andrzej Domaradzki (USC)

Local Organizing Committee:

California Institute of Technology: Brady**,** Colonius**,** Dabiri**,** Hunt**,** Leonard**,** McKeon
California State University Long Beach: Rahai
University of California Los Angeles: Eldredge, Karagozian, Kim, Kavehpour
University of Southern California : Domaradzki (Chair), Blackwelder, Campbell, Kanso, Muntz, Newton, Phares, Pottebaum, Redekopp, Ronney, Sadhal, Spedding

The Local Organizing Committee held its first (and so far the only meeting) a year ago, June 15, 2007.

Convention Center and Hotels:

Long Beach Convention Center booked at the total price of $33,040 and the deposit of $10,680 paid on May 1, 2008.

Contracts signed with the following hotels (price and max room blocks in parentheses): Hyatt ($189, 375 rooms), Westin ($169, 125 rooms), Renaissance ($169, 150 rooms).

There is also work in progress on contracts with Courtyard (price TBD, 100 rooms) and Best Western ($139, 60 rooms); contracts to be finalized after the 2008 meeting in San Antonio.

Overall, there are total of 16 hotels/motels in the downtown area within a walking distance of the LBCC (or by a free local shuttle) with a total of 2,984 rooms.

Sunday-night reception:

At various times three potential reception venues were considered: **the Aquarium of the Pacific, the Queen Mary,** and **the Hyatt.** The Hyatt has been eliminated because it is unclear that a planned outside pavilion where the reception could be held will actually be built. This leaves the Aquarium and the Queen Mary. Both venues were assessed first during the APS site visit on Feb. 18, 2007 and found acceptable. In order to decide which one should be chosen, both have been re-visited on Oct. 18, 2008, by two members of the local organizing committee (Karagozian, Domaradzki). A side-by-side comparison of features important for a reception is provided below.

Aquarium	Queen Mary
Max. capacity 2,500 persons (we are planning for 1,200 + 5% variance). The APS group would use the entire facility without sharing space with other groups.	Max. capacity 5,000 in 16 rooms. A cluster of 5 rooms with outside decks considered for the reception can accommodate 1,350 persons. There would be other guests/groups in other parts of the ship.
Typical "filling" food menu with multiple stations (10-12 food stations) quoted at $79/person (this is 2008 pricing) but they will work with $50-60. Options include carving stations, pasta bar, potato bar, seafood, salad bars.	The pricing is around $20/person per a food station giving $80 for a "filling" meal. Likely can be reduced to $60. Similar food options to Aquarium; they estimate about 5 pieces of food per station per person in prices.
Drinks are separate, $7/alcoholic drink (10-12 bars distributed through facility). Can work with 1-2 drink tickets per person then cash after that.	Same.
Total for food + 2 drinks, and tax: $70-80. No separate rental fee.	Comparable, but total was more difficult to pin down. No separate rental fee.
Seating: 200 existing, 300 extra available, including "cocktail" seating at tall tables/stools. Beyond that additional seating would need to be rented. But there are many places outside with informal seating, i.e., low walls that can be used as benches.	Seating: as many seats and tables as we like.
Access: walking distance from the Convention Canter; multiple doors to the facility. They will usher in attendees at multiple entrances to avoid lines (they have lots of experience with this). Food and drink stations placed well into the facility (near exhibits) to avoid congestion near entrances.	Access: across the harbor, requires bus transportation; logistics of moving many people at the same time to upper decks seems difficult because of limited and narrow stairs (3 entrances) and only a few small, older elevators.
Layout: two levels, single-connected, flowing space without clearly defined rooms, large outdoor area with "hands on" exhibits (shark pools, etc.). Food stations uniformly distributed inside and outside. In case of rain the reception can be held entirely indoors.	Layout: four levels, multiple banquet/buffet rooms, large open deck areas with views of the harbor. Eating outside is OK but no food served on decks because of birds. Rather complicated layout could mean people could get lost or just stay in one place during event. Proximity to Queen Mary Hotel state rooms could also cause some confusion on some floors. Rain could make outside decks unusable and rooms quite crowded.
Hours: 7-11 p.m. The Aquarium closes to public at 6 p.m. Buffet open for 1.5 hours.	Hours: 6 p.m.-midnight. Not sure on buffet timing but this may be similar.

Contract: signed for a fixed number of guests with 3-5% variance allowed. Suggested to sign soon to reserve the entire space.	Did not ask but must be similar. Strong suggestion to sign in 2008; probably, individual rooms reserved by other groups could break up the preferred APS cluster.
Appearance: clean and attractive typical public aquarium with few fluid dynamics specific displays (generation of tsunamis, wave tanks operating for some exhibitions, plus many biolocomotion examples!).	Appearance: historic art deco transatlantic ship, with a view of Long Beach from decks; possible access to the engine room for participants; the age is showing but a continuing renovation may result in a fresher look by the time of the meeting.

Recommendation: based on the comparison the local organizing committee recommended the Aquarium of the Pacific for the Sunday reception. We could not find serious negatives for this choice except that there were already at least two APS DFD receptions held in aquariums in the past (New Orleans?, Tampa in 2006). The Queen Mary is an attractive alternative and could work out fine if everything goes well. But we have identified several things that could go wrong and this makes this choice more risky. Long Beach is known for jazz music and clubs and hiring some local jazz band(s) would be an attractive entertainment option for the reception.

Meetings and More has contacted the Aquarium and the space is on hold. A contract to be negotiated after the 2008 San Antonio meeting.

Planning for the 2011 APS DFD Meeting in Baltimore MD

Report to the APS Executive Committee

by Andrea Prosperetti
Department of Mechanical Engineering, Johns Hopkins University

Hotel. A contract with the Baltimore Marriott Waterfront Hotel for the dates of Nov. 20 (Sunday) to 23 (Tuesday), 2011 has been signed on June 13, 2007. We have reserved about 600 rooms for Saturday, Sunday and Monday nights, plus smaller numbers for Thursday, Friday and Tuesday nights. The total number of room-nights is about 2,000, the same as this year in San Antonio.

The room price will be $ 169 per night, increased by not more than 4% annually between 2007 and 2011 with a cap of $ 190; the price includes all taxes.

Attendance to the APS DFD meeting has been increasing lately. The Marriott has a total of 750 rooms. We are looking into the possibility of reserving them all. In addition, in the last year several other hotels (Hilton Garden Inn, Homewood Suites and others) have opened within one block of the Marriott, and several more are within easy walking distance. Thus, there should not be any problem in this area. We are considering the possibility to enter into agreements with some of these other hotels depending on the final attendance at the San Antonio meeting.

Meeting space. One possible concern is the availability of sufficient meeting rooms of adequate size for the parallel sessions. The hotel has a total of 36 meeting rooms distributed on floors 3 and 4. The smallest rooms, some of which can be combined, have a capacity of about 45 and there are 2 ballrooms with a capacity of 1,600 and 2,100, respectively, one for the plenary session and one for exhibitors, poster sessions and coffee breaks. Our inspection in early 2007 convinced us that the space available is quite sufficient for an attendance of between 1,300 (Tampa) and nearly 1,600 (Salt Lake City), but it might be tight with an attendance of 1,700 as the current trends suggest. The Baltimore Convention Center might have been another possible venue but as of now it is booked for our dates. On the other hand, given the situation of the economy, the Convention Center might become available or – for the same reason – our attendance might be smaller.

Monica Malouf and I plan a second visit to the Marriott early next year to focus on this problem in detail.

Reception. We have entered a preliminary agreement with the National Aquarium to hold our reception on Sunday evening Nov. 20, 2011, although no contract has been signed yet. The Aquarium works with a specific caterer, so that part is taken care of as well. We have menus and price lists, but no definite choice has been made yet.

November 16, 2008

Andrea Prosperetti

DFD Treasurer's Report, Ellen Longmire

Award Account Balances

Award	9/30/08	3/31/08	3/31/07	3/31/06
Acrivos	$76,830	$74,404	$71,595	$68,755
Fluid Dynamics Prize	$142,514	$137,911	138,692	140,575
Laporte	142,421	137,822	128,534	119,870
FDP + Laporte	284,935	275,733	267,226	260,445

Each year, the FD Prize recipient receives a check of $10000 and travel allowance to the Nov. meeting paid from the FD + Laporte accounts. The Acrivos recipient receives $1000 plus an allowance of up to $1500 for travel to DFD meeting. (The Frenkiel recipient receives $1000 from the DFD operating account).

Operating Account Balance

Account	9/30/08	3/31/08	3/31/07	3/31/06	3/31/05
Operating	$460,294	429,015	360,069	355,314	313,682

The current balance includes $46,700 that has been spent in deposits on future meetings, so that only $413,000 is available for expenditure. The vast majority of our income is derived from meeting registration fees. We earn a small return on investments each year (~$18k) and receive ~14k in DFD dues. The vast majority of our expenses are related to our annual meeting. As stated previously, the American Physical Society recommends that each division's operating account have a balance equal to the typical of cost of one its Annual Meetings. Based on expenses for recent meetings, our account balance remains easily within these guidelines.

Recent Meetings

Meeting	Income	Expense	Profit (loss)
Salt Lake (2007)	418,541	386,815	31,725
Tampa (2006)	380,700	353,190	27,510
Chicago (2005)	441,087	421,913	19,174
Seattle (2004)	336,979	308,922	28,057
NJ (2003)	308,860	329,396	(20,536)
Dallas (2002)	258,420	249,035	9,385

Fluid Dynamics Program

William W. Schultz

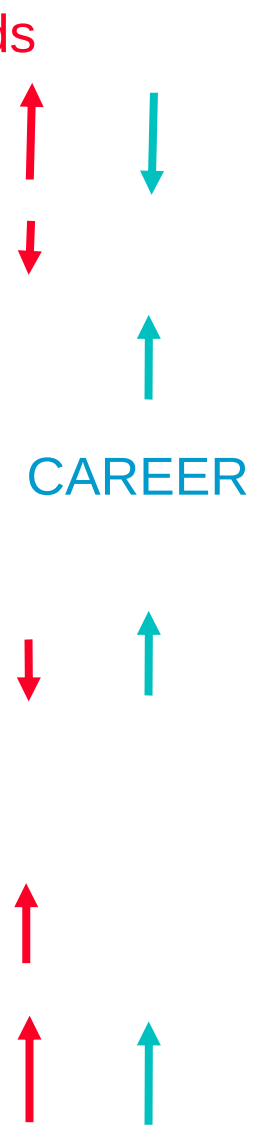
Program Director

Trends in Funding

- **2008 Budget $9.1 M (45% increase) (~15% success rate)**
  - Sympathetic DD
  - Proposal Pressure (especially CAREER)
  - Good PR (Highlights)
- **WWS spent much time spending OPM**
  - EFRI
  - BES
  - Peta-Apps
  - CDI
  - IGERT
  - IDR (unsolicited)
- **FY2009 continuing resolution**
  - 4th straight year of postponing ACI
  - 15% fewer submissions in Fall Window
  - More submissions expected in spring window

Proposal Trends

- TURBULENCE, STABILITY & FLOW CONTROL
- RHEOLOGY - Complex fluids and polymer processing
- GEO FLUID MECHANICS
- GENERAL FLUID MECHANICS & COMPRESSIBLE FLOWS
- MICRO / NANO FLUIDICS
- INSTRUMENTATION
- BIOMED FD
- BIOMIMICRY



Six (not so little) words

- Cyber
- Complexity
- Sustainability
- Nano
- Interdisciplinary
- Transformative

Workshops

- **Think about Sp/Su Joint Workshops!**
  - Today's workshops are tomorrow's solicitations
  - If no solicitation, still increases local proposal pressure
  - Increase FD exposure
  - Help Get OPM
- **Possible Candidates**
  - Hurricane Intensity
  - Community Codes and Data
  - Aircraft Wakes
  - Best if driven by larger community
- **Informal gathering after XC meeting**

Looking for my successor!

- **Tradition has FD PM being a**
  - » **Rotator**
  - » **Coming from the APS/DFD community**
  - » **Sliding up and down the Re Scale**
- **Skills required**
  - » **Media Relations—being able to speak at a 7th Grade level**
  - » **Scrap for scraps with other directorates and programs**
  - » **A good ear for the community**
  - » **Good excel and cut and paste skills**
- **Fringe benefits**
  - » **Travel, travel, travel**
  - » **Fleeting friendships**
  - » **Influence Science Policy**
  - » **Learn good proposal writing skills**

Councillor's Report
for the DFD Executive Committee, November 2008
Jim Brasseur, DFD Councillor

The DFD Councillor represents the DFD at the APS Council Meetings and reports back to the DFD any issues at the APS level potentially of interest to the DFD. There have been two APS Council meetings since the last Councillor's report, on 11 April 2008 in St. Louis, and recently on 16 November 2008 in Dallas. I was not able to attend the 11 April Council, but have the report and minutes. This report summarized important issues from these meetings.

1. **The American Physical Society Study Group on Energy Efficiency** report was released to congress on September 16, 2008. The report was developed by a committee of physicists and engineers and chaired by Burt Richter, Nobel laureate. The basic theme of the report is the importance of improving energy efficiency in all power-related systems (automobiles, building hear\ting and cooling, appliances, etc.) as a necessary element in reducing energy consumption, US dependence on oil, and reduction of greenhouse gases. The report was released with the intention of influencing the debate leading up the presidential election. Unfortunately the economic collapse overshadowed all other issues in the election. Nevertheless, some congressmen have supported the report and the report was written up in the McClatchy newspapers. The hope is that the report will have more influence in coming months.

2. **Fellows (see attachment 1).** The DFD received its full request of 15 Fellows this past year, including a request for an additional foreign Fellow beyond the normal allotment of 1/2 of 1 percent. This is the 4th highest allotment and reflect the relatively large size of the DFD relative to other divisions.

3. **A new journal, "*Physics*" (see attachment 2)**. A new journal called "Physics" was initiated on September 15, 2008 (physics.aps.org) that is intended to highlight "exceptional" research papers from the APS journals, *Physical Review Letters* and *Physical Reviews*. The intention is to evolve this journal to be somewhat at the level of Nature or Science, except that it would be drawn from physics journals. Interestingly, the advertisement for the new journal refers to fluid mechanics (Archimedes principle), yet the *Physics of Fluids* is not among the journals from which papers are highlighted since this is an AIP journal rather than an APS journal. I made the request that the selected be extended to include the *Physics of Fluids*. However, APS has no authority to draw from the *Physics of Fluids*. A representative form AIP, however, indicated that they may do something similar for AIP journals. I also noted to the Editor in Chief that there were a few papers already published related to Fluid Dynamics that were not labeled as such. I made the request that papers that were about fluid dynamics contain this designation in addition to any other designations felt to be appropriate—nonlinear dynamics, for example.

   On a related point I am in discussion with the Editor in Chief to make more use of images and videos from our Gallery of Fluid Motion within the APS journals. I shall report in future what evolves from these discussions.

4. **Push for Physics Teachers**. It was reported that there is a severe lack of teachers who understand physics well, reducing the number of students at the middle and high school levels who develop a desire to pursue physics at the college level. The APS has developed education certificate programs with NSF support called "PhysTEC" (www.physTEC.org) at 6 institutions specifically directed at training teachers specifically to teach physics.

5. **Proposal for APS Council meeting to coincide with the DFD Annual Meeting in 2010.** One of the yearly APS Council meetings is in November near our DFD annual meeting and is often made to coincide in time and place with the annual meeting of the Division of Plasma Physics. With Juan Lasheras' agreement, I will make a formal proposal to the APS Executive Committee at their February meeting that in 2010 the APS Council and Executive Committee meeting coincident with the DFD meeting in Long Beach CA. This will give the councillors of the other APS divisions the potential to observe our annual meeting if they so choose and will draw attention to the DFD within the APS. The DFD president will be offer the opportunity to address the APS Council and the DFD can invited one or more members of the APS Executive Committee attend our Executive Committee meeting.

6. **Brasseur voted onto the APS Executive Committee**. At the recent APS Council meeting Jim Brasseur was voted onto the APS Executive Committee. This will last through my term as Councilor (2010), which means that I will be able to represent DFD interests within the APS even better than before.

7. **Washington Funding Report (see attachment 3).** Beginning with the budget pullbacks after the Katrina disaster, moving through the transition in power in Congress from Republican to Democrat and ending with the recent elections, the US government is operating under continuing resolutions for the third year. With the exception of small supplemental increases that have been spread over multiple research funding agencies, the funding agencies have been operating under a loss, and the near-term prospects are not different. In attachment 3 I present 4 charts of budget appropriates in FY 2007 through continuing resolution in 2007.

ATTACHMENT 1

Fellowship Allocations and Recommendations for Calendar Year 2008

Unit	Unit Membership	Regular Fellowship Allocation (3/8 of 1%)	Alternate Fellowship Allocation (1/8 of 1 %)	Total Fellowship Allocation	ACTUAL Add-Match Recommendations	ACTUAL Fellowship Recommendations
DIVISIONS						
Atomic, Molecular and Optical	2,832	11	3	14	2	16
Astrophysics	2,114	8	3	11	0	7
Biological Physics	1,881	7	2	9	0	7
Chemical Physics	1,782	7	2	9	1	10
Computational	2,129	8	3	11	0	5
Condensed Matter	5,592	21	7	28	4	32
Fluid Dynamics	2,735	10	4	14	1	15
Laser Science	1,363	5	2	7	1	8
Materials Physics	2,453	9	3	12	1	13
Nuclear Physics	2,624	10	3	13	0	13
Physics of Beams	1,210	5	1	6	0	6
Particles and Fields	3,470	13	4	17	0	17
Plasma Physics	2,498	9	4	13	2	15
Polymer Physics	1,254	5	1	6	1	7
TOPICAL GROUPS						
Few Body Systems	320	1	1	2	0	2
Fundamental Constants	419	1	1	2	1	3
Gravitation	1018	4	1	5	0	5
Hadronic	366	1	1	2	0	1
Instrument & Measurement Science	606	2	1	3	0	3
Magnetism & its Application	836	3	1	4	1	5
Plasma Astrophysics	370	1	1	2	0	1
Shock Compression	407	1	1	2	0	2
Statistical & Nonlinear Physics	944	3	2	5	0	3
Quantum Information	886	3	1	4	0	0
FORUMS						
Education	4,646	9	3	12	0	2
History of Physics	3,928	9	3	12	0	1
Industrial & Applied Physics	6,740	12	8	20	0	12
International Physics	3,608	9	3	12	0	10
Physics & Society	5,805	9	3	12	0	4
APS FELL. COMM.				Discretionary		2
TOTAL ALLOCATED		**196**	**73**	**269**	**15**	**227**

Total Membership: **46,269**

Total Allotment (1/2X1%) **231**

doc:fellgen\08felanl.xls

ATTACHMENT 2

APS Journals
Physical Review Letters, Physical Review, and Reviews of Modern Physics

American Physical Society

RSS Feeds | Email Alerts

Editorial: *Physics* - spotlighting exceptional research (September 15, 2008)

Just 50 years ago, the American Physical Society (APS) embarked on a new adventure. Submissions of high-quality research papers had been growing relentlessly, and physicists continued their postwar productivity with healthy increases in exciting new results. The APS felt that the time was right for a new journal, a publication that would feature short reports of exciting new work and foster interactions among physicists in related fields. In his first editorial at the helm of the brand-new *Physical Review Letters* (PRL), Sam Goudsmit wrote that the journal should contain "about 15 papers," and these would only be accepted "if they contain important new discoveries or cover topics of high current interest in rapidly changing fields of research." Goudsmit anticipated that the journal would become very popular with authors, and it did. PRL was a roaring success, and published many of the most important papers in physics.

This success has come at a price. PRL continues to publish many important papers, but it must also confront the incredible surge in the number of submissions and published papers. PRL has grown fivefold from the original 15 papers per week, and the combined output of all of our peer-reviewed publications is now about 18,000 papers a year. This embarrassment of riches is an obvious problem for physicists who want to track their own fields, not to mention interesting developments in allied areas that could catalyze new interdisciplinary work. And we know that lurking within the merely excellent body of peer-reviewed papers published annually by APS are some truly exceptional papers. How can we most effectively bring the best in all of the *Physical Review* journals to the wider notice of working physicists?

This month, APS is taking another step on the journey with the formal debut of an online publication called *Physics*. Available in beta form since July, this new venture offers expert-written commentary articles that highlight and provide context for a select group of papers published by APS and occasionally others. "Viewpoints" discuss and explain a particular paper's findings in a manner accessible to all physicists, especially to those outside a narrow subspecialty. "Trends" are longer pieces that cover a recent body of work in a specific field, but also look ahead to the challenges and questions that fascinate that field's top researchers. "Synopses" are staff-written summaries of papers that merit wider attention among physicists in all fields. Your feedback and suggestions by email to physics@aps.org are welcome.

Since July, we have already published in *Physics* 18 Viewpoints, 2 Trends, and over 25 Synopses. The quality of these articles, and the articles that they target, is outstanding, and the comments we have been getting indicate that *Physics* is just what many busy physicists have wanted to keep up on new developments in physics.

We expect that these commentaries on the best peer-reviewed research published by APS will complement existing coverage of physics in *Physical Review Focus*, *Physics Today*, Physics News Update, and other venues. In future issues, we hope to introduce new features and new ways of highlighting the latest research. Most of all, we will strive to ensure that *Physics* spotlights the best in physics as we journey toward another 50-year anniversary.

Gene D. Sprouse
Editor-in-Chief
American Physical Society

Physics
spotlighting exceptional research

http://physics.aps.org/

Physics Email Alerts

ATTACHMENT 3

FY 08 Appropriations Final (December 2007)

Science Account	FY 05 ($B)	FY 06 ($B)	FY 07 ($B)	FY 08 ($B) Req	Pct	House	Pct	Sen	Pct	Final
DOE SC	*3.57*	*3.47*	3.84	4.40	+14.6	4.52	+17.7	4.50	+17.1	*3.85 (+0.3%)*
DOE EERE	1.16	1.16	1.46	1.23	-15.6	1.90	+30.1	1.71	+17.1	1.72 (+18.2%)
NSF	5.48	5.59	5.84	6.43	+10.1	6.51	+11.4	6.55	+12.1	6.07 (+3.8%)
R&RA	4.23	4.45	4.76	5.13	+7.8	5.14	+8.0	5.16	+8.4	4.82 (+1.2%)
MREFC	0.165	0.234	0.191	0.245	+28.2	0.245	+28.2	0.245	28.2	0.221 (+15.7%)
EHR	0.844	0.700	0.698	0.751	+7.6	0.823	+17.9	0.851	21.9	0726 (+4.0%)
NIST Core	*0.400*	*0.431*	0.493	0.594	+20.5	0.630	+28.0	0.653	+32.0	*0.519 (+5.3%)*
STRS	*0.370*	*0.383*	0.434	0.501	+15.4	0.501	+15.4	0.502	+16.7	0.440 (+1.4%)
CRF	*0.030*	*0.048*	0.059	0.094	+59.3	0.129	+119	0.151	+156	*0.109 (+85%)*
NIST ATP/TIP	0.140	0.079	0.079	0.000	-100.0	0.093	+17.7	0.100	+26.6	0.652 (-17.5%)
DOD 6.1	1.49	1.47	1.53	1.42	-6.9	1.55	+1.3	1.56	+1.9	*1.46 (-3.7%)*
DOD 6.2	4.70	5.17	5.10	4.36	-14.5	5.08	-0.08	4.65	-8.8	*4.16 (-18.4%)*
NASA Sci	[5.50]	[5.25]	[5.25]	4.71	NA	4.71	NA	4.71	NA	4.71 (NA)

Red italics: Adjusted for earmarks; NASA accounts redefined in FY 2008

APS physics

FY 09 Request (February 2008) and Recent Historical Perspective

Science Account	FY 05 ($B)	FY 06 ($B)	FY 07 ($B)	FY 2008 ($B)			FY 2009 ($B)		
				Req	Final	*Final*	Req	%	%
DOE SC	*3.57*	*3.47*	3.81	4.40	3.97	*3.85*	4.72	+18.9	*+22.7*
DOE EERE	1.16	1.16	1.46	1.23	1.72	*1.54*	1.26	-27.1	*-18.3*
NSF	5.48	5.59	5.84	6.43	6.07	6.07	6.85	+13.0	+13.0
R&RA	4.23	4.45	4.76	5.13	4.82	4.82	5.59	+16.0	+16.0
MREFC	0.165	0.234	0.191	0.245	0.221	0.221	0.145	-33.2	-33.2
EHR	0.844	0.700	0.698	0.751	0.726	0.726	0.790	+8.9	+8.9
NIST Core	*0.400*	*0.431*	0.493	0.594	0.601	*0.519*	0.634	+5.5	*+22.2*
STRS	*0.370*	*0.383*	0.434	0.501	0.441	*0.440*	0.535	+21.3	*+21.6*
CRF	*0.030*	*0.048*	0.059	0.094	0.160	*0.109*	0.099	-38.1	*-9.2*
NIST ATP/TIP	0.140	0.079	0.079	0.000	0.065	0.065	0.000	-100	-100
DOD 6.1	1.49	1.47	1.53	1.42	1.63	*1.47*	1.70	+4.0	*+15.7*
DOD 6.2	4.70	5.17	5.10	4.36	5.06	*4.16*	4.26	-16.1	*+2.0*
NASA Sci	[5.50]	[5.25]	[5.25]	4.71	4.71	4.71	4.44	-5.7	-5.7

Red italics: Adjusted for earmarks; NASA accounts redefined in FY 2008

APS physics

FY 08 Appropriations Supplemental (June 2008)

Science Account	FY 05 ($B)	FY 06 ($B)	FY 07 ($B)	FY 08 ($B)				
				Req	Pct	Final	Pct	Supp
DOE SC	*3.57*	*3.47*	3.84	4.40	+14.6	*3.85*	*+0.3*	+0.0625
DOE EERE	1.16	1.16	1.46	1.23	-15.6	*1.54*	*+18.2*	+0.0625
NSF	5.48	5.59	5.84	6.43	+10.1	6.07	+3.8	+0.0625
R&RA	4.23	4.45	4.76	5.13	+7.8	4.82	+1.2	+0.0225
MREFC	0.165	0.234	0.191	0.245	+28.2	0.221	+15.7	
EHR	0.844	0.700	0.698	0.751	+7.6	0.762	+4.0	+0.0400
NIST Core	*0.400*	*0.431*	0.493	0.594	+20.5	*0.519*	*+5.3*	
STRS	*0.370*	*0.383*	0.434	0.501	+15.4	*0.440*	*+1.4*	
CRF	*0.030*	*0.048*	0.059	0.094	+59.3	*0.109*	*+85*	
NIST ATP/TIP	0.140	0.079	0.079	0.000	-100.0	0.652	-17.5	
DOD 6.1	1.49	1.47	1.53	1.42	-6.9	*1.46*	*-3.7*	
DOD 6.2	4.70	5.17	5.10	4.36	-14.5	*4.16*	*-18.4*	
NASA Sci	[5.50]	[5.25]	[5.25]	4.71	NA	4.71	NA	+0.0625

Red italics: Adjusted for earmarks; NASA accounts redefined in FY 2008

;

APS physics

FY 09 Budget (CR Through March 6, 2009)

Science Account	FY 05 ($B)	FY 06 ($B)	FY 07 ($B)	FY 2008 ($B)			FY 2009 ($B)		
				Req	Final	*Final*	Req	CR	Final
DOE SC	*3.57*	*3.47*	3.81	4.40	3.97	*3.85*	4.72	3.85	
DOE EERE	1.16	1.16	1.46	1.23	1.72	*1.54*	1.26	1.54	
NSF	5.48	5.59	5.84	6.43	6.07	6.07	6.85	6.07	
R&RA	4.23	4.45	4.76	5.13	4.82	4.82	5.59	4.82	
MREFC	0.165	0.234	0.191	0.245	0.221	0.221	0.145	0.221	
EHR	0.844	0.700	0.698	0.751	0.726	0.726	0.790	0.726	
NIST Core	*0.400*	*0.431*	0.493	0.594	0.601	*0.519*	0.634	0.519	
STRS	*0.370*	*0.383*	0.434	0.501	0.441	*0.440*	0.535	0.440	
CRF	*0.030*	*0.048*	0.059	0.094	0.160	*0.109*	0.099	0.109	
NIST ATP/TIP	0.140	0.079	0.079	0.000	0.065	0.065	0.000	0.065	
DOD 6.1	1.49	1.47	1.53	1.42	1.63	*1.47*	1.70		1.84
DOD 6.2	4.70	5.17	5.10	4.36	5.06	*4.16*	4.26		5.08
NASA Sci	[5.50]	[5.25]	[5.25]	4.71	4.71	4.71	4.44	4.71	

Red italics: Adjusted for earmarks; NASA accounts redefined in FY 2008

APS physics

Action of the 2007/2008 DFD Nominating Committee

(Chaired by Patrick Weidman)

1. I first wrote the outgoing (Roger Bonnecaze) Nominating Committee Chair's legacy, as Mr. Bonnecaze was too busy.

2. The full new Nominating Committee was appointed with John Kim accepting the role of Vice-Chair, and John Saylor as APS Council Member.

3. A call went out for nominations for two open Member-at-Large positions and the position of Vice-Chair with deadline June 18, 2008.

   There were 8 moninations for Members-at-Large which were paired down to 4 nominations by the committee, 2 for each position. Since there were only 2 nominations for Vice-Chair, there was no need to pair down the nominations for this position.

4. Voting took place by the DFD community and the candidates selected are now well-known:

   (1) Member-at-Large: Stefan L. Smith (UCSD)

   (2) Member-at-Large: Lance Collins (Cornell University)

   (3) Vice-Chair: Anne Karagozian (UCLA)

5. Overall, things went very smoothly and I will pass all that I have learned on to the new Nominating Committee Chairman John Kim.

Subject: Summary Report - 2008 François Naftali Frenkiel Award for Fluid Mechanics
To: Executive Committee, American Physics Society, Division of Fluid Dynamics
From: Sandra M. Troian (stroian@caltech.edu)
Date: September 24, 2008

1. Award Description

The Division of Fluid Dynamics each year confers the François N. Frenkiel award in recognition of significant contributions to fluid mechanics that have been published in the journal *Physics of Fluids* the preceding year by young investigators. Eligible authors must be "young investigators", defined as those 40 years or younger during the preceding year. Authors who fail to provide this information at the time of publication, as requested, are ineligible for consideration of this award.

2. Members of 2008 Frenkiel Committee including research interests (7 members, staggered 2-year terms):

- **Jerzy Blawzdziewicz – Dept. of Mechanical Engineering, Yale University**

Term ends 12/09: Primary focus on non-equilibrium behavior of complex fluids, such as colloidal suspensions, emulsions, foams, macromolecular solutions, dynamics of granular materials and glass-forming matter. Interested in complex non-equilibrium macroscopic properties that arise from the coupling of the motion on the macroscopic and microscopic scales. Combines hydrodynamics and statistical mechanics point of view in developing models for heterogeneous systems.

- **Michael Graham, Dept. of Chemical and Biological Eng, University of Wisconsin**

Term ends 12/08: Turbulence and coherent structures in polymer solutions: bifurcation-theoretic approach, elasticity-driven instabilities in polymeric liquids: analysis and suppression; wall slip and viscoelastic flow instability in polymer melts and solutions; flow and transport fundamentals for complex fluids; applications in microfluidics and bioseparations; micro structural and multiscale simulations of polymeric liquids in flow; flow and transport driven by tunable surfactants; two-fluid Taylor-Couette flow: fluid dynamics and bioseparations

- **Manoochehr Koochesfahani, Dept. of Mechanical Eng., Michigan State University**

Term ends 12/08: Fundamental studies of turbulent mixing and mixing control; unsteady fluid dynamics and aerodynamics; internal combustion engine flow and control; micro- and nano-flows; biologically-inspired flows; development of advanced optical diagnostics for fluid flow and mixing studies. Primary developer of digital laser induced fluorescence (LIF) technique for the quantitative imaging of scalar fields and chemical reactions in liquid phase flows; has created molecular-based methods for flow imaging such as molecular tagging velocimetry (MTV) and molecular tagging thermometry (MTT). More recently, has pioneered the method of Quantum Dot (QD) imaging for mapping flows with nanometer resolution.

- **Zvi Rusak, Depts. of Mechanical, Aerospace, and Nuclear Engineering Dept, Rensselaer Polytechnic Institute**

Term ends 12/08: Analytical and numerical work investigating subsonic and transonic flows; sonic boom problem; supersonic aerodynamics. Research interests also include vortex dynamics; vortex stability and control; vortex breakdown phenomena; high angle of attack aerodynamics and super-maneuverability; rotorcraft aerodynamics; viscous flows; bifurcation and stability theory.

- **Omer Savas [OS], Dept. of Mechanical Engineering, UC Berkeley**

Term ends 12/09: Research divided between vortex dynamics and vascular biofluid mechanics. Primarily experimental, with some numerical studies conducted in collaboration with colleagues. General interest in fluid dynamics including aircraft wake vortices; biofluid mechanics; boundary layers; instrumentation; rotating flows; transient aerodynamics; turbulent flows; vortex dynamics.

- **Stavros Tavoularis, Mechanical Engineering Dept., University of Ottawa, Canada**

Term ends 12/09: Director of the Ottawa Fluid Mechanics Laboratory, supervising a large team of graduate and undergraduate students, postdoctoral fellows and other researchers on a variety of experimental and computational projects including turbulent mixing and vortical flows; biomedical engineering, biofluid dynamics; experimental techniques, instrumentation; aerodynamics, nuclear reactor thermal hydraulics, and design of flow apparatus and instrumentation. Author of the graduate level textbook, *Measurement in Fluid Mechanics*, published by Cambridge University Press.

- **Sandra M. Troian, Dept. of Applied Physics, Caltech, Frenkiel Committee Chair**

Term ends 12/08: Examines influence of interfacial stresses on micro- and nanoscale transport phenomena in liquid films and interfaces including effects of confinement, fingering and bifurcation instabilities, and phase transitions; thin film flows triggered by Marangoni, thermocapillary or Maxwell stresses; actuation of bio/micro/optofluidic devices by electrical, thermal or acoustic fields; non-normality and transient growth in lubrication type flows; molecular dynamics (MD) simulations of liquids near patterned boundaries. Experimentation and flow visualization combined with analytic, numerical and non-equilibrium MD simulations.

3. Selection Procedure

The membership of the Frenkiel committee was approved in late March 2008, at which time the Chair requested from the UCLA office of the Physics of Fluids [POF] a spreadsheet containing the list of eligible papers. The information sheet, prepared by Stacey Morse, included a tag identification number, title of publication, names and birthdates of author and co-authors, publication date, editorial office which first handled the paper for review (UCSB or UCLA), journal volume, issue and page number. The POF office also mailed individual copies of CDs to members of the committee containing the complete set of 2007 papers (pdf format) published in POF, from which each member could extract the set eligible for the award.

In early May, the committee received an explicit set of instructions from the Chair describing the procedure to be used for evaluation of papers. This set of instructions included a timeline, protocol for scoring and ranking papers, a copy of the master spreadsheet to be used for entering data, and a reminder about policies regarding confidentiality when containing outside experts or requesting referee reports. Of the initial 45 eligible papers, each was assigned two readers and the average score was used to advance a select short group of papers for further evaluation. This first phase was completed by early June and six papers progressed to the second stage.

Of the remaining six candidate papers, each was evaluated and scored by all seven members of the committee with some email exchanges in between. The committee's work continued well into early September, at which time each member of the committee was asked to score each paper on a scale of 1 to 3 (highest), with fractional scores and duplicate scores allowed. One paper emerged as the clear winner precluding the need for a final run-off vote.

4. Proposed Winning Publication

The Frenkiel committee thereby unanimously declared the following paper the winner:

Leukocyte Margination in a Model Microvessel by Jonathan B. Freund of the University of Illinois at Urbana-Champaign [Phys Fluids, Vol 19, pg 023301 (2007)]

The citation for this award will read:

The 2008 Francois Naftali Frenkiel Award for Fluid Mechanics is hereby awarded to Jonathan B. Freund of the University of Illinois at Urbana-Champaign for insightful numerical simulations which elucidate the mechanism leading to leukocyte margination observed in microvessels.

5. Additional Information and Comments

- The composition of this year's Frenkiel committee represented a fairly wide range of research interests and backgrounds, so critical to the evaluation of publications devoted to so many different areas of fluid dynamics. It is therefore important in selecting members of the committee each year that due consideration be given to the composition of the committee and that proper balance be achieved with respect to fields of expertise, age, and number of theorists, "numericists" and experimentalists.

- There were 45 eligible entries this year, spanning a wide range of phenomena from low to high Reynolds number. The balance of papers between theory and experiment was rather skewed, a trend that seems to persist. Only 24% of eligible papers (11/45) could be classified as partially or wholly experimental in origin; the remaining 76% (34/45) of papers can best be described as purely analytical and/or numerical in scope. Very few papers described experimental work which required sophisticated apparatus or a significant investment of time in assembling the experimental setup. A larger fraction of experimental studies involved straightforward flow visualization or image processing; these were often simplified or "model" experimental studies carried out strictly in support of theoretical or numerical work, which formed the actual backbone of the paper.

  This observed trend is increasingly worrisome since the papers evaluated for this prize represent the work of "young investigators", who in turn represent the best and brightest of the next generation of fluid dynamicists. If experimental studies continue to take a back seat to analytical and numerical work, then all the expertise developed over the generations in assembling and building experimental components relevant to fluid dynamical studies may soon be lost. The APS-DFD is therefore strongly encouraged to initiate broader discussion of this point so as to encourage, entice and train junior investigators for work in experimental science and engineering.

- Stacey Morse of the UCLA office was indispensable in assembling the information required to conduct our review of eligible papers. She should be commended for her efforts and efficiency in support of the committee's work.

- The committee seemed pleased with the overall organization and conduct of the team. The Chair was especially fortunate to work with such a committed group of faculty despite very busy summer and fall schedules.

Sincerely,

Sandra M. Troian

Acrivos Award Committee

Rodney Fox, Sanjiva Lele, Eckart Meiburg, Tom Peacock, Todd Squires, Patrick Tabeling, and Paul Steen, as Chair, served on the 2008 Acrivos Dissertation Award Committee.

Ten nominations were received for the Award. Starting in June, through email correspondence and a conference call, the committee narrowed its selection to two candidates. A final August conference call brought consensus around the winner, John R. Taylor.

Paul Steen

Report of Program Committee

(members: Andrew Belmonte, Bob Behringer, Wolfgang Losert, Rich Lueptow, Phil Marcus (chair), Beverley McKeon, Jim Riley)

Eight on-time proposals and one late proposal were received for minisymposia at the November 2009 Annual Meeting in San Antonio. In San Antonio there will be a meeting room dedicated to minisymposia. That room will not be used for any of the regular parallel sessions. The proposals were ranked, and after much discussion and email debate, it was decided to choose 6 of the minisymposium proposals.

The winning proposals were:

1) An Education proposal by Jean Hertzberg and John Cimbala on Videos and Multimedia for Fluids Instruction

2) A Tutorial proposal by John Dabiri on Lagrangian Coherent Structures

3) An International/ Tutorial/Focus proposal by W. van Sciver on Flow Visualization in Low Temperature He

4) A Focus/International proposal by Detlef Lohse on High Rayleigh Number Convection

5) A Focus/International proposal by Osman Basaran on Tip Streaming

6) A Tutorial proposal by David Kassoy and Scott Stewart on Computational Challenges in Modeling Transient Detonation.

A Minisymposium proposal submitted by John Sheban, “Earth and Space Magneto-Fluid Dynamics” was determined to be more suitable as an Invited Session for the APS March 2009 Meeting in Pittsburgh PA, where the DFD was assigned 2.5 Invited Sessions. The other Invited Session at the March meeting sponsored by the DFD will be organized and chaired by Malcolm Andrews and is entitled “Buoyancy Effects in Fluids – Rayleigh-Taylor and Richtmyer-Meshkov”. Assignment of a ½ session meant that we needed to co-sponsor a session with another Division. This was done with the Division of Computational Physics. P.K. Yeung will organize and chair the co-sponsored session, which is entitled, “Fluid Dynamics and Computational Science”.

Report on the 2008 APS/DFD Fellowship Committee

The members of the 2008 APS/DFD Nominating Committee were:

Juan Lasheras (12/08), Chair lasheras@ucsd.edu ;
Annick Pouquet (12/08) pouquet@ucar.edu;
Jean-Pierre Hulin (12/08) Hulin@fast.u-psud.fr;
S. Balachandar (12/08) bala1s@ufl.edu;
Sutanu Sarkar (12/08). sarkar@ucsd.edu;
Mory Gharib (12/09). mgharib@caltech.edu;
Robert Krasny (12/09). krasny@umich.edu.

The committee solicited nominations from the members and received 33 nominations. All the nominations were received on-line. The system put in place by the APS central office worked at near perfection and all the problems reported last year appear to have been satisfactory corrected.

Based on the current number of members of our division, out DFD committee was asked to select a maximum of 10 Fellow nominations as primary, plus up to 5 alternates.

Each member of the committee was asked to rank all the candidates in order of priority and submit their ranking prior to the teleconference. To help during our panel deliberations, each member of the committee was assigned as the primary reviewer of 5 nominations and the secondary reviewer of 5 others. This ensured that at least 2 committee members conducted an in-depth review of each candidate's nomination material and publications.

After extensive deliberation the following members were recommended and subsequently approved for Fellowship of the society

Victor Yakhot	For seminal contributions to turbulence and combustion modeling
Elisabeth Guazzelli	For extensive and careful experiments revealing complex phenomena in mobile particulate systems.
Michael Plesniak	For fundamental contributions to understanding complex turbulent shear flows including the effects of curvature, multiple strain rates, three-dimensional boundary layers, and non-canonical jets in crossflow.
Osman Basaran	For computational, theoretical, and experimental work on improving fundamental understanding of pinch-off singularities, drop formation, and electrohydrodynamics, and for development of nonstandard inkjet printing applications
Dwight Barkley	For combining computation and dynamical systems analyses to obtain remarkable insights into hydrodynamic instabilities and patterns in diverse systems, including flow past a cylinder, channel flow, laminar-turbulent bands, and thermal convection.

John Lister	Manifold contributions to the dynamics of free-surface flows, their singular structures, and applications to flows and transport processes relevant to the earth sciences.
Paolo Orlandi	For his contributions to the study of turbulence, vortex dynamics, and other areas of fluid mechanics, in particular through the application of low-order energy-conserving finite-difference numerical techniques.
Manoochehr Koochesfahani	For his pioneering contributions to the development of experimental techniques including laser induced fluorescence, molecular tagging velocimetry and thermometry, and quantum dot imaging, and for his fundamental studies of turbulent mixing.
Richard Lueptow	For careful experiments and simulations in a broad range of areas including granular flow, Taylor Couette flow, physical acoustics, turbulent flow, membrane filtration, and sprays as well as noteworthy service to the Division of Fluid Dynamics.
Mujeeb Malik	For pioneering contributions to the understanding of the breakdown of cross flow vortices in three-dimensional boundary layers, attachment-line and hypersonic boundary layer instability including real gas effects, and developing physics-based methods for the prediction of laminar-turbulent transition.
Julian Domaradzki	For insightful contributions to the development of subgrid-scale algorithms for computational fluid dynamics and for their use to illuminate the physics of the energy transfer between eddy scales in large eddy simulations of turbulent flow fields.
Kazhikathra Kailasanath	For contributions to advanced computational techniques and basic understanding of the dynamics of chemically reactive flows and their application in design, analysis, and performance of propulsion concepts
Kyle Squires	For his role in discovering the mechanisms creating concentration fluctuations of inertial particles in turbulent flow, and for fundamental contributions to the computational modeling of wall turbulence in complex geometries.
William Childress	For pioneering contributions to dynamo theory, geophysical fluid dynamics and biological fluid mechanics including locomotion.
Leslie Smith	For important and insightful contributions to the understanding of turbulence in engineering and geophysical flows through theory and numerical simulations

Juan C. Lasheras, Chair

November 18th, 2008

Publications and Media Committee Report November 2008

Submitted by Jean Hertzberg, Chair 2008
University of Colorado, Boulder

The official charge of this committee is "The Publications and Media Committee shall solicit articles for *Physics News*, shall interact with the editors of the *Physics of Fluids*, *Physical Review* and *Physical Review Letters* on matters of interest to the Division, and shall serve as the Divisional interface with editors and publications for the popular press. The Publications Committee shall promote the work of the Division and the advancement of fluid dynamics through media outlets."

Actions Taken:

1) Video Archiving:

Jim Duncan worked with LOC member Adonios Karpetis to develop combined archiving/Gallery submission instructions. Authors were required to use a consistent file format, and submit both a high-resolution MPEG 2, and a low res MPEG 1 format file, for web viewing. Files were stored on Cornell's eCommons, and referenced through arXive. Jim reports all went well. See separate report from Jim.

2) Physics Today

Eric Lauga made contact with the editors of Physics Today, and submitted the following report:

(A) Physics Today - articles: Over the last 10 years there have been 12 articles published in Physics Today (PT) about fluids, at approximately one per year:
2008: Bryon D. Anderson - "The Physics of Sailing"
2006: Gregory Falkovich and Katepalli R. Sreenivasan - "Lessons from Hydrodynamic Turbulence"
2006: Yves Pomeau and Emmanuel Villermaux - "Two Hundred Years of Capillarity Research"
2005: John D. Anderson, Jr - "Ludwig Prandtl's Boundary Layer"
2003: Detlef Lohse - February - "Bubble Puzzles"
2001: Leo P. Kadanoff - "Turbulent Heat Flow: Structures and Scaling"
2001: George M. Whitesides and Abraham D. Stroock - "Flexible Methods for Microfluidics"
2000: Michael P. Brenner and Howard A. Stone - "Modern Classical Physics Through the Work of G. I. Taylor"
1998: Alice P. Gast and William B. Russel - "Simple Ordering in Complex Fluids"
1998: Daniel De Kee and Kurt F. Wissbrun - "Polymer Rheology"
1998: Pasquale Dell'Aversana and G. Paul Neitzel - "When Liquids Stay Dry"

The officials at PT told me they welcome proposals for feature articles. The proposal should include an explanation of why the topic is of general interest, a brief outline of the article's contents, and information about the author(s) (no more than 3 coauthors). Submission is by email.

Most authors I talked to told me this is the way they got their papers published. In most cases, they told me it took some time before being accepted (up to 2 years for the 2008 paper by Bryon D. Anderson). It also looks like it does not hurt to know someone well placed at the APS in support of the proposal (someone like Kadanoff for ex.). In one case, someone (Deltef Lohse) got invited to write his paper; he does not know who decided the particular subject would be a good topic. He actually later submitted a proposal on a different subject, but the proposal was not accepted. In one case, two authors (Pomeau and Villermaux) submitted their paper after organizing a conference on the 200th anniversary of capillary research. In one case, (John Anderson), apparently we (the DFD) asked the editors of PT for an article about Prandtl, and they decided on John Anderson for it.

(2) Physics Today - Backscatter. The submission process for a picture to appear on the last page of Physics Today ("Back scatter") is actually very straightforward. Submissions are made on the web, at the address http://www.physicstoday.org/backscatter.html. The image is selected by the editors.

(3) "Adopt-a-physicist" website: I have looked into this in more detail. This looks quite interesting, and easy for someone to get involved. You sign up, then a high school class chooses you, and you have a few discussion forums with their students, on education, but also on careers, projects, etc.

Based on Eric's work, the Pubs and Media Committee sent out an email announcement to the membership about "Backscatter" and "Adopt a Physicist". We briefly discussed soliciting Invited Speakers from the annual meeting to submit articles to PT, but no concrete action has been taken.

2) Physics Central Website

Bud Homsy tried to contact Jessica Clark, APS Public Outreach Coordinator, to access the Gallery of Fluid Motion, in order to facilitate the use of Gallery images on the Physics Central website. He assumes the problem has been resolved.

Bud Homsy also suggested that the winners of the Gallery should be asked to submit a high-school level abstract in addition to their Phys Fluids documents. Jim Duncan agreed to oversee this.

Also on the Physics Central site, PhysicsQuest is a middle school competition that consists of four physical science experiments centered on a mystery involving a famous physicist. Each of the experiments gives students a clue that they need to solve the mystery. Classes can submit their answers online and be entered into a random drawing for prizes. PhysicsQuest kits are provided free to registered classrooms. So far they've done one on Einstein, and one on Madame Curie. We talked about how for a future competition some of the experiments could be focused on fluid physics, and/or be focused on a famous fluid dynamicist. Da Vinci came to mind.

Similarly, Physics Central sponsors educational video contests, and solicits videos on, for example, the physics of football. We could suggest a fluids-oriented topic.

After discussion, we decided to let both these activities percolate.

3) High school teacher workshop

Karen Flack organized the high school teacher workshop for the San Antonio DFD meeting this fall.

At the March APS meeting, there are a suite of K-12 teacher workshops. We should contact Ed Lee about doing one featuring fluids next year.

4) Fluids Education

Jean Hertzberg and John Cimbala have organized a Fluids Education Workshop, to take place just before the San Antonio meeting. 30 DFD members have signed up to participate. In addition, there will be an Education Minisymposium on Videos and Multimedia for Fluids Instruction Sunday Morning, Session AW.

5) Traditional Public Media

Promotion of interesting results to traditional external media such as Science News, the New York Times, etc. has been turned over to the Ad Hoc Committee on Media and Public relations, following the Executive Committee's decision to fund their effort.

2008 Gallery of Fluid Motion, San Antonio, Texas

This year there were 38 videos and 55 posters entered in the Gallery of Fluid Motion. For the first time, video entry was done using the ecommons/arXiv video entry process developed by Steve Pope. As in previous years, entrants were asked to submit videos in mpeg-2 (720 by 480, 29.97 fps) format. The video judging is done at the meeting from DVDs created from the videos submitted by the entrants. DVDs use the above mpeg-2 format so the submission requirement allows the entrants to have the most control over the appearance of the videos on the meeting DVD and decreases the work and responsibilities of the local organizers. In previous years, this format requirement was not enforced and the local organizers took it upon themselves to convert the format of many of the videos for the DVD. This year the video format was enforced by strengthening the language on the meeting website, using ecommons/arXiv as a filter, and encouraging the local organizers to reject videos in other formats. Only two videos had to be resubmitted and only three entrants asked for advice on converting their videos to the required format.

DVDs can play up to about 30 Mbytes/minute so a Gallery video (3 minutes maximum length) with maximum quality for the DVD will contain about 90 Mbytes of data. This is a large amount of data for a typical web download by the general public. Also, most web browsers do not play mpeg-2 videos; the standard is mpeg-1. Thus, the entrants were asked to submit two videos for each entry: one 90-Mbyte mpeg-2 file for the DVD and one 10-Mbyte mpeg-1 file for download by the public. All the videos are archived (including the mpeg-1 and mpeg-2 files) on the ecommons/arXiv system and a list of links to these videos is available upon request. Once all the videos were submitted, all the entrants were contacted for suggestions and complaints about the new submission process. Only a few minor suggestions were received. Also, the local organizers said that the system worked well and that the creation of the DVDs for the meeting went smoothly. For the 2009 Gallery, only minor changes in the video entry process are planned.

-Jim Duncan

APS/DFD External Affairs Committee

Summary Report for the
November 2008 DFD Executive Committee Meeting

Kimberly Hill, Chair (12/08)
Mike Plesniak, Vice-Chair (12/09)
Jim Brasseur (12/08)
Jane Wang (12/09)
John DeBruyn (12/09)
Shiyi Chen (12/09)
Jon Freund (12/10)

This year the External Affairs Committee performed three principal tasks:

1) The Committee again oversaw selection and distribution of the Travel Award Subsidy Grants for the DFD Annual Meeting. In general, we followed the same procedure this year as was followed last year. A new application form was developed in 2007 that was used provided information about the applicant's need, funding available to meet the need that would not be met by the subsidy, whether they were giving a presentation, whether they had previously received such a grant, whether there were multiple applicants from the same group, etc. This information was collected again this year on the applications. The subsidy levels awarded did not depend on what the applicants wrote in the details of their funding sources, other than an expressed need and the availability of funds for the remainder of the needs. Instead, the subsidy levels were matched to perceived applicant needs in terms of country of residence.

   The External Affairs Committee Vice-Chair, Michael Plesniak, oversaw most aspects of the selection process as well as most follow-on actions needed to provide recipients with their award checks. The applications were submitted to the External Affairs Committee Chair, Kimberly Hill, who forwarded them to Michael to distribute to the External Affairs Committee. We then selected recipients based on individual rankings of applicants, and, after receiving approval from the Executive Committee, we forwarded the awardee names to the local organizing committee and to the DFD Treasurer. Michael also sent out and collected the W-8/W-9 IRS forms from awardees and forwarded them to Mike Stephens. Checks were issued and sent to Kimberly to bring to the meeting. Grant checks are to be given to awardees on-site at the registration desk.

   The check cashing arrangements are important for awardees from countries where it is difficult to cash a US check upon return, however this part of the process typically causes considerable difficulties for the local organizing committee. It is recommended that in the future, depending on the availability of a local Bank of America as well as bank policies, check cashing at future meetings should be limited to awardees with clear needs. This year, there is a branch of the National Bank of America within a mile of the meeting site. The national hotline has said that checks

could be cashed at their local branch without additional charge, so this should not be an issue this year. However, reaching a human being at the local branch has proven to be challenging.

The funding this year from the APS/DFD was supplemented by the National Science Foundation. Michael Plesniak applied for travel grant support from NSF on behalf of the APS/DFD External Affairs Committee toward the travel awards program, and the proposal was funded. This allowed the travel subsidy program to fund more applicants than it otherwise would have been able.

2) The Committee coordinated with the local organizing committee and contacts in Mexico to help with their effort of arranging for group transportation for scientists from Mexico. This has primarily involved checking in with them regarding funding needed and funding raised. The local organizing committee and Professor Eduardo Ramos from UNAM/Cuernavaca have organized this, nearly in its entirety. We have not received a final report from them, but the essence of what we last heard is as follows. Approximately $15K was raised through contributions by Haliburton (~$7K) and Schlumberger-Boston Research and from a Schlumberger organization in Mexico (~$8K), some of this with the help of Prof. Howard Stone. The money raised will pay for a bus from Mexico City to San Antonio and shared hotel rooms for approximately 40 scientists. The awardees were chosen essentially from two processes. Most applied directly to Eduardo and a few applied to the APS/DFD travel subsidy program. The External Affairs Committee forwarded the applicants from Mexico to the travel subsidy program to Prof. Ramos for his evaluation.

3) Last year, the Committee initiated a new project to produce T-shirts designed to promote awareness of and interest in fluid dynamics, to be given free of charge to students attending the student lunch, with the remainder to be sold at-cost at the DFD Annual Meeting. The Executive Committee approved this idea at the Spring telecon, and provided funds to produce 540 T-shirts for last year's meeting.

   There were still several boxes of T-shirts that remain from last year's meeting. They were shipped to Minneapolis and since then shipped to San Antonio. They will be sold at this year's meeting for $8.50 to pay for the production costs and tax. We recommend that these be displayed prominently at this year's meeting. We are working with the local organizing committee to do so; they will be sold at the registration desk to enable record keeping including sales tax.

After serving three years on the External Affairs Committee – one as a member, one as Vice-Chair, and one as Chair of the External Affairs Committee – Kimberly Hill will retire as Chair after the DFD Annual Meeting in November, and Michael Plesniak will assume the role of Chair.

Kimberly M. Hill
Chair, External Affairs Committee

REPORT OF THE USNCTAM REPRESENTATIVE

TO: Executive Committee, APS/DFD
FROM: John F. Foss
DATE: 7 November 2008

The US National Committee Theoretical and Applied Mechanics is the nation's agent for the IUTAM. Its principal responsibility is to represent IUTAM for the quadrennial Congress meetings. One such meeting was held in August 2008 in Adelaide, Australia. The USNCTAM raised funds (NSF, ONR, AFOSR, etc.) to support (primarily) young researchers whose entries had been accepted for presentation.

The USNCTAM also holds a quadrennial Congress (displaced by two years from that of the IUTAM). The 2010 National Congress meeting will be at Penn State University from 27 June-2 July.

Historically, the USNCTAM has had relatively strong involvement of the solid mechanics community. There is an apparent interest by all members to retain and strengthen the participation of fluid mechanics representatives. In this regard, Hassan Aref is a continuing member and provides "institutional memory." Nadine Aubrey has served as Chair, and Lance Collins is now in sequence to serve as Chair. It is clearly to the benefit of the APS/DFD to have continuing and strong connections with the USNCTAM. An example of such a benefit was a SCORDIM (Subcommittee on Research Directions in Mechanics) Report entitled: *Research in Fluid Dynamics: Meeting National Needs,* prepared by APS/DFD and distributed by USNCTAM.

Report of the APS DFD Ad-Hoc Committee on Cyber-Fluid Dynamics

DFD Executive Committee Meeting, Nov. 2008
Chair: P.K Yeung, on behalf of the Committee

Committee Formation and Membership

The CyberFD Ad-Hoc Committee was formed in May 2008, with its core mission being to advocate the fluid dynamics community's interests in a new era of Cyber opportunities and challenges, as suggested in the final report of an NSF Cyber-Fluid Dynamics Workshop held in 2007. Committee members (J.G. Brasseur, G.E. Karniadakis, J. Koplik, B.J. McKeon, M.W. Plesniak) were chosen to cover a range of expertise and interests, and appointed by the DFD Chair (A.J. Smits). The DFD Chair-Elect (P.S. Marcus) and NSF Program Director for Fluid Dynamics (W.W. Schultz) have worked closely with the committee, through a series of e-mail discussions and conference calls.

Mission, Objectives and Tasks Undertaken

We refer to the core mission statement circulated at the time the Committee was formed, and provide brief notes below on tasks undertaken and resulting outcomes to date.

1. To help promote our community's readiness for deriving broad and maximum benefits from future Cyber resources, based on a shift towards more openly collaborative paradigms in pursuing science discovery, including the development of inter-disciplinary virtual organizations.

   The Committee observes that the fluid dynamics community has not seen much success in NSF programs in Cyber-enabled science discovery, nor in virtual organization development. There is also a contrast from other fields such as combustion, or nanoscience, which have benefited from viable community codes and science gateways and web portals. Cyber-enabled sharing of large datasets from experiments is also a concern. While there is a consensus in our community for the development of new collaborative tools, how to proceed is much less clear.

2. To provide a channel for widening the Cyber-related perspectives in the fluid dynamics community, including sponsoring joint activities with the Division of Computational Physics (DCOMP) of APS, and special activities on Cyber issues at the DFD Annual Meetings in November.

   (a) We proposed, and the Local Organizing Committee adopted, a new "Cyber-FD" sorting category for abstracts submitted to the 2008 DFD Meeting. However, the response rate (5 entries) not sufficient for a full session. This outcome suggests the need for more publicity in the future. Committee members also noted that the distinction between *computational* and the broader meaning of *Cyber* is probably not yet widely appreciated in our community.

   (b) We proposed, and have received approval for, a joint DFD-DCOMP invited session at the 2009 APS March Meeting, entitled "Fluid Dynamics and Computational Science". This is to highlight the broad value of large computations in fluid dynamics, with examples from astrophysics, biofluids, combustion, hurricane prediction, and multiphase turbulent flows. Leftover funds from an NSF workshop budget will help provide *partial* travel support for the (5) speakers.

3. To increase awareness of our subject in the broader scientific research community, coordinate outreach efforts, and help make the case for more resources, including research funding and supercomputer allocations for the field of fluid dynamics.

    (a) For both research funding and supercomputer resource allocations the Committee believes it is important to increase the awareness of fluid dynamics in sponsor agency officials and researchers in other disciplinary areas. Considerable discussion has centered on the themes of a coordinate CyberFD committee visit with various NSF program directors, reaching out to the leadership of professional societies (e.g. American Geophysical Union) in related fields of study, and the possibility of new workshops with cross-directorate support by NSF to help promote new modes of interdisciplinary interactions. However, since we are acting as (or will be perceived as) representative of the fluids community, much caution and support within the community is essential.

    (b) The scope of our "more resources" objective overlaps naturally with the charge of a separate ad-hoc effort (led by J.G. Brasseur, also one of our committee members) to collect data and recommend community-wide strategy on fluid dynamics funding. The Committee also deems it important, at least highly desirable, that our efforts will bring benefits and be supported by a wide section of the fluids community, including those who focus on non-computational work. The Committee has, thus, decided to look to the DFD Executive Committee for guidance towards achieving the best outcomes for our community.

Future Plans

The Committee intends to follow up on the tasks that have begun as described above. For example. we intend to use the 2009 APS March Meeting arrangement as an opening for promoting deeper interactions between the memberships of the DFD and DCOMP divisions within APS. P.K Yeung and P.S. Marcus are also members of DCOMP and will travel to the 2009 APS March Meeting, where they hope to meet with some of the DCOMP divisional officials.

More importantly, guidance and support from the DFD ExComm is sought for the following:

1. To organize, with support from NSF, and hopefully other sponsors, a new workshop in 2009 focused on collaborative issues in fluid dynamics, with emphasis on Cyber and virtual organization issues. Some possible themes of such a workshop could include, for example, sharing experiences on use of NSF-supported TeraGrid resources, access to numerical or experimental databases, open source code development, community code protocols, and international interactions. Support from the DFD leadership, including representation on an organizing committee, is important for any material outcomes from this activity to gain wide acceptance which is in turn essential for the effort to be sustainable and for the community to benefit. Innovative ideas from outside our community will be helpful as well.

2. To work with other professional societies to come up with ideas for joint cross-disciplinary workshops that can be funded at NSF and would promote interactions between fluid dynamics and other fields. This effort will be broad and not Cyber-specific, and hence overlap with the charge of a separate ad-hoc committee on research funding issues. The Committee's consensus is to ask the Executive Committee to decide on the best way to proceed on behalf of the DFD membership at large.

REPORT FROM THE AD HOC COMMITTEE ON MEDIA & PUBLIC RELATIONS

Report written by Jim Brasseur and Jim Duncan
for the DFD Executive Committee Meeting on 22 November, 2008, San Antonio

Committee Members: Jim Brasseur (chair), Jim Duncan, Phil Marcus, Mike Plesniak Bill Schultz, Lex Smits

The ad hoc Media & Public Relations committee was born a couple years ago when Phil Marcus, Lex Smits, and Jim Brasseur decided it was time to get serious about changing the perception that fluid dynamics is a "mature" science that no longer requires significant support for new scientific discovered, nor serious attention to new developments in fluid dynamics by the scientific and engineering communities. We created initially an ad hoc "Committee of Fluids Funding" that included Mike Plesniak and Bill Schultz, the former and current program monitors for the NSF fluid dynamics program. With time our efforts lead to two major efforts, both of which have come to fruition in the past year. The first is a questionnaire to gather data from the fluid dynamics community. With the second, Media and Public Relations for the Annual Meeting in San Antonio, Jim Duncan joined the team.

Questionnaire to Identify Funding Trends for Research in Fluid Dynamics *(Attachment 1)*

We have just placed a questionnaire on the DFD website (http://www.aps.org/units/dfd/index.cfm) under the "News & Announcements" section to obtain data. Please see ***Attachment 1***. Specifically, as explained on the website, "The Division of Fluid Dynamics of the American Physical Society (APS/DFD) plans to develop a report on past, current and potential future funding trends in fluid dynamics. When completed, this report will be made available on the APS/DFD website. It will be used as part of an effort to develop new mechanisms to improve funding opportunities in fluid dynamics and to take advantage of existing mechanisms. We have found that useful data are difficult to obtain from within the funding agencies, so we are asking the fluid dynamics community to help us develop these data. We request principal investigators (PI and coPI) of fluids-related grants to fill in a Questionnaire with data on current and past granting activities from which the DFD will develop its report. The Questionnaire could take 15-20 minutes to fill out, depending on how readily the information is at hand; we suggest that you review the Questionnaire and gather the information beforehand. We recognize the effort involved, however we are trying to advance our field of fluid dynamics, so please do your part to help. Please complete the Questionnaire by February 1, 2009, if possible. We plan to begin the data analysis process soon thereafter."

Media and Public Relations for the Annual Meeting: Jim Duncan and Jason Bardi (AIP), with Jim Brasseur

At the DFD Executive Committee meetings November 2007 and February 2008 we received approval to initiate a contract, based on a proposal, with the American Institute of Physics (AIP) "Member Society Media Services," managed by Jason Bardi, to develop Media & Public Relations for the 2008 Annual Meeting of the DFD in San Antonio. Jim Duncan kindly agreed to take the lead in this effort.

There are four primary elements to the Media & Public Relations that were developed for the 2008 Annual Meeting:

Virtual Press Room *(Attachment 2)*

A *Virtual Press Room* was created at http://www.aps.org/units/dfd/pressroom/ (see ***Attachment 2***) by Sarah Conners (APS) and Jason Bardi (AIP). This is the central resource for the press to obtain information, the press releases, the lay-language papers, and the images and videos (see below) from which they can develop their media stories. This excellent resource will be useful in future and will form the basis for Media & Public Relations for future annual meetings.

Press Releases *(Attachment 3)* and Lay-Language Papers

The topics for the news releases and lay papers included the invited talks, selected abstracts and the Gallery of Fluid Motion. Organized by Jim Duncan, the selection of abstracts was accomplished by a team of 15 DFD members, each of whom read an average of 100 abstracts looking for news worthy material using guidelines developed by Jason Bardi of AIP and members of the media committee. From this process, approximately 200 abstracts were submitted to Jason as possible items for press releases or lay papers. Jason Bardi then selected 17 of these for press releases and seven for lay papers. The press releases were developed by Jason's team, and the lay papers were developed by the authors guided and edited by Jason's team. All material was passed through Jim Duncan and Jim Brasseur for comment before releases. These press releases (PR) are given in ***Attachment 3***:

PR 1/ Save the Date. Released October 24th. Announcing the meeting and give a brief description of the invited talks.

PR 2/ Eight topics. November 6th. JUPITER'S SHRINKING RED SPOT, OIL SPILLS, SPREADING GERMS, FLEXIBLE FLYING MACHINES, AND THE MYSTERIES OF SAND RIPPLES ON MARS.

PR 3/ Seven biologically related topics. November 13th. ROBOTIC HUMMINGBIRDS, BURROWING CLAMS, EMBRYONIC HEARTS, THE SECRETS OF THE BAT'S FLAP, AND A DOLPHIN SWIMMING MYSTERY SOLVED.

PR 4/ Golf Ball Flow. November 19th. Single topic press release on DFD regular talk and entry in the Gallery of Fluid Motion.

PR 5/ Blast Helmet Flow. November 19th. Single topic press release on DFD regular talk.

PR 6/ Virtual Pressroom. November 19th. Announcing the virtual pressroom containing copies of press releases, lay papers and Gallery of Fluid Motion images and videos.

The Lay-Language Papers are accompanied by beautiful images and are best viewed from the Virtual Press Room at http://www.aps.org/units/dfd/pressroom/.

Gallery of Fluid Motion

Gallery of Fluid Motion images and videos were selected for the virtual press room in the following manner. Soon after the deadline for submitting entry forms for the Gallery (September 26th), an email was sent to all the entrants inviting them to submit images and brief descriptions that might be used for the virtual pressroom. Many images were submitted and Jim Duncan selected 16 of these images. The images files and descriptions were then forwarded by Jim Duncan to Jason Bardi for use in the virtual pressroom. After the video submission date (October 10th), the videos were viewed over the web by Jason Bardi and Jim Duncan who selected nine of them for inclusion in the virtual pressroom. A press release was done announcing the Gallery of Fluid Motion. The entries included from the Gallery of Fluid Motion, containing both images and videos, are best viewed from the Virtual Press Room at http://www.aps.org/units/dfd/pressroom/.

Proposal and Contract with AIP (*Attachment 4)*

The Executive Committee agreed to fund a contract with AIP of Media & Public Relations for $15,000. This included significant costs for the development of a "Virtual Press Room" that, it turned out, was not required due to a preexisting website and help from Sara Conners at the APS. This allowed Jason Bardi to also develop "Lay Language Papers" that were indicated in the funded proposal only as a possibility. The Revised Proposal with the lower costing of $12,000 is included as ***Attachment 4***.

Development of Programs with the National Science Foundation: Panel Discussion

Jason Bardi, Jim Brasseur, and Jim Duncan have been working closely with Josh Chamot (Public Affairs Specialist) and Bill Schultz at the National Science Foundation to develop a public Panel Discussion that will interact with the general public through the web and telephone call in. After a long period of extensive discussion we have chosen the following theme for this panel discussion: "The importance of fluid dynamics in (patho)physiology, medicine, disease and human health.." To this end we approached 3 panelists who have direct interactions with clinical physicians, with Bill Schultz moderating, who also pursues research in swallowing with clinical implications. Although we initially planned to have this panel discussion on November 20th preceding the DFD Annual Meeting, there were technical problems that precluded this event happening before December. The new tentative date for this event is December 18, 2008. The following is a draft of the "Advisory" that will be sent out to advertise the event:

The Life of Fluids:
How Flow Dynamics within the Body Impact Human Health

Complex and simple fluids course through every corner of our bodies, affecting the function of every cell, tissue, and organ in profound and subtle ways.

Now, physicians, engineers, physicists, and mathematicians working in the field of fluid dynamics are unlocking the secrets of how these fluids flow – research that is helping to solve health mysteries and enable more effective treatments for diseases.

On Nov. 20, four leaders [researchers] in fluid dynamics will discuss how advances in bio fluid dynamics are influencing medicine in a live webcast hosted by the National Science Foundation (NSF). Join us with your questions and comments at: http://www.nsf.gov/fluiddynamics2008 {{WEBSITE NEEDED}}.

Three topics will be discussed:

- New perspectives on gastrointestinal flow mechanics that are helping doctors diagnose and treat acid reflux and swallowing disorders.
- Blood flow studies leading to the development of novel endovascular techniques to treat ischemic stroke, intracranial aneurysms, and other vascular diseases.
- Models that illuminate the flow of particles (medical or toxic) and fluids (gases or liquids) into the lungs, leading to diagnostic tests and therapeutic treatments for lung diseases.

WHEN: December 18, 2008 at 2:30 p.m. ET

WHO

Moderator:
Bill Schultz, Fluid Dynamics Program Officer, Directorate for Engineering, NSF

Panelists:

Jim Brasseur, Professor of Mechanical Engineering, Bioengineering, and Mathematics, Pennsylvania State University (http://www.mne.psu.edu/Faculty/brasseur.html)

Jim Grotberg, Professor of Biomedical Engineering, Professor of Surgery, and Director of the NASA Bioscience and Engineering Institute, University of Michigan (http://biofluids.engin.umich.edu/)

Juan Lasheras, Professor, Distinguished Professor of Department of Mechanical and Aerospace Engineering and Bioengineering, University of California, San Diego (http://maeresearch.ucsd.edu/lasheras/)

TO PARTICIPATE
Watch the webcast at http://www.nsf.gov/fluiddynamics2008 and call or email questions to…

This panel discussion is the first of what we hope will be yearly events as part of an ongoing strategy of developing relations between the DFD and funding agencies, and additional Media and Public Relations outside the Annual Meeting. If this first effort is successful we propose to develop a new theme for a public panel discussion yearly.

Proposals related to Media and Public Relations

We have made large strides in the past year to advance both Media and Public Relations and to improve the prestige of fluid dynamics within the scientific community and funding agencies. We have also initiated the collection of data that will have to be analyzed and a report generated in the coming year. Jim Duncan has agreed to lead the effort again next year for Media and Public Relations for the Annual Meeting with Jason Bardi at AIP and help from Jim Brasseur. Jim Brasseur plans to develop further Media and Public Relations and funding efforts outside the annual meeting. The coming year will also require serious discussion concerning the transition to a permanent committee and the design of its charter and mechanisms to maintain a strong leadership in the coming years. Thus there is therefore a need to maintain the adhoc Committee on Media and Public Relations for the foreseeable future. We also feel that the experiment on Media and Public Relations has had a great start, but needs to be funded for at least two more years before a full assessment of its impact can be made. We therefore make two formal proposals for consideration by the DFD Executive Committee:

PROPOSAL 1: We propose that continuation of the Ad Hoc Committee on Media and Public Relations be approved for two more years, through 2010.

PROPOSAL 2: We propose that $15,000 per year be allocated from general DFD funds for the next two years, 2009 and 2010, for the development of Media and Public Relations both for the DFD Annual Meetings, and for activities in addition to the annual meeting. Most of this money will be used to continue the contractual relationship with the American Institute of Physics (AIP) Member Society Media Services managed by Jason Bardi. We estimate that roughly $10-11K will be required for Media and Public Relations at the DFD Annual Meetings. The remainder will be used for programs outside the Annual Meeting such as the development of press releases throughout the year.

Media & Public Relations Report: ATTACHMENT 1

Division of Fluid Dynamics

Questionnaire to identify funding trends for research in fluid dynamics.

The Division of Fluid Dynamics of the American Physical Society (APS/DFD) would like help the fluid dynamics research community identify how to search for funding opportunities in fluid dynamics now and in the future. In addition we would like to initiate an effort to improve funding in research that involves fluid dynamics. Both of these endeavors will benefit all DFD fluid dynamics researchers. We are requesting that principal investigators (PI and coPI) of fluids related grants help us gather data that we can use to accomplish our objectives. We will create a summary of the funding profile with recommendations for the fluid dynamics community that will be placed on the APS/DFD website. We request that you please provide us with whatever data you can in responding to this questionnaire. We shall start compiling the data on Feb 1, 2009, so please respond by then. Your responses are anonymous, however please be as accurate as possible; the greater the accuracy, the more useful will be the data for you.

First Name

Last Name

Institution

CURRENT FLUIDS-RELATED RESEARCH ACTIVITY OF PI/coPI

Please identify the scope of your current research activities that involve fluid dynamics at a significant level by filling in the following table:

Country of PI/coPI	Number of graduate students	Number of post-docs	Number of technical or other senior staff members	Number of undergraduates active in your research	Are you a mmeber of APS Div. of Fluid Dynamics?
					Yes No

CURRENT FLUIDS-RELATED FUNDING

Please identify your current funding sources for research that involves fluid dynamics. Please include the name of the program within the funding agency, the total time period for support, and the total financial support in US dollars, by filling in the following table. Note: If you are the PI or co-PI on a larger multi-group effort, please include funding only for the fluids-related effort for which you are PI or coPI (e.g., if you are a subcontract on a larger effort, please include only the figures for your subcontract):

CURRENT FLUIDS-RELATED FUNDING OF PI/coPI

Funding Agency or Source	Country of Funding Source	Program within the funding agency	Total number of years support	Total support in U.S. dollars	Does your quoted support include indirect costs?
	USA				
	USA				
	USA				
	USA				
	USA				
	USA				
	USA				
	USA				
	USA				
	USA				

PAST FLUIDS-RELATED FUNDING

We know that this is a more difficult request, however if we are to establish funding trends in fluid dynamics from which we can extrapolate into the future to provide guidance to the research community in fluid dynamics, and to help in advocating for more funding in fluid dynamics related research in the future, we need data on past funding. The more of this data you can provide on past research that involved fluid dynamics, the more we will be able to provide you an accurate assessment of funding trends, so please provide as much information for as far back in the past as possible on the following table. If you do not remember, leave blank; if you need to estimate, please put "(est)" next to the number; however, please provide as much data as you can. Note: If you were the PI or co-PI on a larger multi-group effort, please include funding only for the fluids-related

effort for which you were PI or coPI (e.g., if you were a subcontract on a larger effort, please include only the figures for your subcontract):

PAST FLUIDS-RELATED FUNDING OF PI/coPI *(if your number is an estimate, please place "(est)" next to the number)*

Year in which support began	Country of Funding Source	Funding Agency or Source	Program within funding agency	Total number of years support	Total support in U.S. dollars.	Does your quoted support include indirect costs?
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					
	USA					

Submit

Media & Public Relations Report: ATTACHMENT 2

Governance
Newsletters
Meetings
News & Announcements
Education & Outreach
APS Fellowship
Prizes & Awards
Fluid Dynamics Video
Image Gallery
Resources

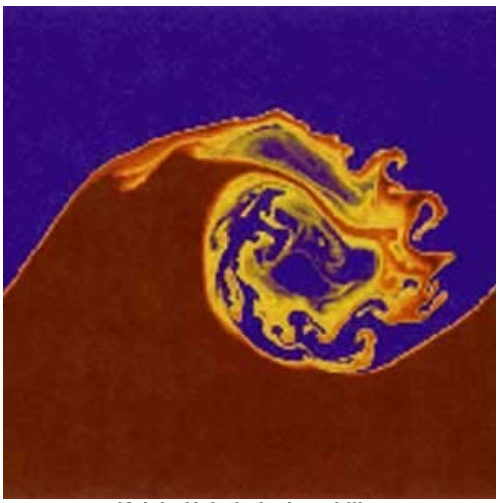
DFD Home | **Virtual Press Room**

Virtual Press Room

Email | Print

Welcome to the Virtual Press Room for the American Physical Society (APS) Division of Fluid Dynamics. The Division exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure.

This page features stories and images related to the Division's annual meeting and other news related to fluid dynamics.



Kelvin-Helmholtz Instability

61st APS Division of Fluid Dynamics Annual Meeting

The 61st Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics takes place from November 23-25, 2008 at the San Antonio Convention Center, and it brings together researchers from across the globe to address some of the most important questions in modern astronomy, engineering, alternative energy, biology, and medicine.

▸ Visit Meeting Website

News Releases

October 24, 2008
The Physics of Star-Forming Clouds, Spider Webs, Sand Dunes, Tears, Flames, and the Urban Environment

November 6, 2008
Jupiter's Shrinking Red Spot, Oil Spills, Spreading Germs, Flexible Flying Machines, and the Mysteries of Sand Ripples on Mars

November 13, 2008
Robotic Hummingbirds, Burrowing Clams, Embryonic Hearts, the Secrets of the Bat's Flap, and a Dolphin Swimming Mystery Solved

▸ Information for Journalists

Lay Language Papers

Lay-language papers are roughly 500-word summaries written by scientists about their own research. They are aimed at a general audience and posted with accompanying graphics and multimedia files. They serve as starting points for journalists who are interested in covering the meeting but cannot attend in person.

▸ Read Lay Language Papers

Image & Video Galleries

Every year, the APS Division of Fluid Dynamics hosts posters and videos that show stunning images, graphics and videos from either computational or experimental studies of flow phenomena. The most outstanding entries are selected by a panel of referees for artistic content and honored for their originality and ability to convey information

The 61st Annual Meeting Image Gallery has a subset of these images and videos available for viewing prior to the judging process.

Media & Public Relations Report: ATTACHMENT 3

PRESS RELEASES IN ADVANCE OF THE APS/DFD ANNUAL MEETING, NOV 2008, SAN ANTONIO

FIRST PRESS RELEASE

REPORTERS: The following news release is related to the 61st meeting of the American Physical Society's Division of Fluid Dynamics, which takes place from November 23-25 in San Antonio. Many of the presentations at this meeting have cool images associated with them, and in the coming weeks, I will send out 3-4 additional news releases highlighting those as well as other interesting presentations in more detail. If you do not want to receive any more information about this meeting, respond to this email with the words PLEASE UNSUBSCRIBE in the subject line. -- JSB

****

THE PHYSICS OF STAR-FORMING CLOUDS, SPIDER WEBS, SAND DUNES, TEARS, FLAMES,
AND THE URBAN ENVIRONMENT
Brief Highlights of Fluid Dynamics Conference in San Antonio, November 23-25

****

For Immediate Release

For more information contact
Jason Socrates Bardi,
American Institute of Physics
301-209-3091
jbardi@aip.org

October 24, 2008 -- From the collapse of star-forming clouds to the flow of the molten Earth's core, from the combustion of gasoline in your car engine to the coursing blood in your veins, from the aerodynamics of flight to the concentration of microscopic animals in the ocean, many of nature's most fascinating phenomena are forms of fluid flow.

The 61st Annual Meeting of the American Physical Society's Division of Fluid Dynamics, which takes place from November 23-25 at the San Antonio Convention Center in Texas, is the largest scientific meeting of the year devoted to the dynamics of such fluids. It brings together researchers from across the globe to present work with applications in astronomy, engineering, alternative energy, and medicine.

Reporters are invited to attend the conference free of charge. Registration instructions and other information may be found at the end of this news release. Brief highlights of the invited talks and some of the more than 1,522 additional presentations at the meeting are listed below.

CONTENTS OF THIS RELEASE

****

1) HIGHLIGHTS OF INVITED TALK

FLUID MECHANICS OF URBAN ENVIRONMENTS
The rapid urbanization of the Earth has led to highly populated cities that act as concentrated centers of human stressors on the natural environment. The degradation of environmental quality due to such stressors, in turn, greatly impacts human behavior. In San Antonio,

Harindra J. Fernando (Arizona State University) will discuss efforts to understand and model fluid motions in urban areas, to identify environmental impacts of urbanization, and to predict how these impacts affect quality of life and sustainability of urban areas.
http://meetings.aps.org/Meeting/DFD08/Event/91460.

STATE-OF-THE-ART SPACECRAFT THRUSTERS.
The Hall-effect thruster is an advanced propulsion system that uses electrical power provided by a spacecraft to generate thrust by ionizing and accelerating propellant to high velocities. Alec Gallimore (University of Michigan) will discuss the fundamental physics and state-of-the-art of these thrusters, which are now being considered for a variety of missions in deep space.
http://meetings.aps.org/Meeting/DFD08/Event/91464.

SUPERSONIC TURBULENCE AND STAR FORMATION
For more than 100 years, astronomers have built their theories of star formation around gravitational instability in star-forming clouds. New work over the last decade by Paolo Padoan (University of California at San-Diego) and others has pointed to an important connection between turbulence in these clouds and gravitational instability. In San Antonio, Padoan will present results of large-scale 3D numerical simulations that investigate the properties of supersonic magneto-hydrodynamic turbulence in star-forming clouds.
http://meetings.aps.org/Meeting/DFD08/Event/91458.

THE DYNAMOS AT THE CORES OF STARS
Deep within the interiors of some planets and stars there are turbulent flowing fluids that induce strong magnetic fields. In San Antonio, Stephan Fauve (Ecole Normale Superieure, Paris) will review the mechanisms of such "dynamos" and their relevance for planetary and stellar magnetic fields. He will also present the results of a recent experiment displaying the generation of magnetic field by a fully turbulent flow of liquid sodium. This field can switch polarities at random, thus mimicking Earth's magnetic field reversals.
http://meetings.aps.org/Meeting/DFD08/Event/91437.

COMPUTING ATMOSPHERIC WINDS
Atmospheric winds are highly complex and difficult to predict accurately, especially in the part where humans live, the "atmospheric boundary layer" adjacent to the earth's surface. To predict the winds at the highest levels of detail requires the largest computers and a numerical approach called "large-eddy simulation," or LES. However since the first LES was done nearly two decades ago, it has been found that the simulation goes badly wrong in the first 200 meters above the surface in some fundamental way that has defied understanding. James Brasseur (Penn State University) will present recent research that appears to explain much of the underlying reasons for the errors, and he will discuss a "framework" in which LES can be developed to improve the LES process of atmospheric modeling.
http://meetings.aps.org/Meeting/DFD08/Event/91472.

COMBUSTION WAVE TRANSITION -- LAMINAR TO TURBULENT FLAMES, AND THEN TO DETONATION
When a detonation occurs, a combustion wave becomes strong and extremely powerful. In San Antonio, Elaine Oran (Naval Research Laboratory) will describe the processes of wave transition in which an initially small, laminar flame, as might be caused by a spark, can evolve into a turbulent flame that produces high compression and strong shock waves. The shocks, in turn, may couple with the flame to form unsteady, propagating shock-flame complexes that may transition to a detonation.

http://meetings.aps.org/Meeting/DFD08/Event/91470.

TURBULENT MIXING IN FUSION IMPLOSIONS
The phenomenon known as Rayleigh-Taylor instability occurs when a dense fluid rests on top of a light fluid in a gravitational field. It also occurs when a pressure gradient accelerates an interface between fluids of different density, such as in inertial confinement fusion implosions. In San Antonio, David Youngs (Aldermaston, UK) will show that 3D simulations of Rayleigh-Taylor instability have made major advances in understanding this process over the last decade.
http://meetings.aps.org/Meeting/DFD08/Event/91462.

COMPLEX FLUIDS ON THE MICRO-SCALE
"Microfluidics" seeks to observe the flows of liquids and gases in tiny silicon, glass, or plastic systems, and it has lots of exciting applications and industrial challenges. In San Antonio, Patrick Tabeling (MMN-ESPCI, Paris) will discuss experiments he and his colleagues have carried out over the last three years to measure microscopic fluid slip and flow along walls, study complex fluids, and observe the dynamical behavior of tiny droplets in microfluid channels.
http://meetings.aps.org/Meeting/DFD08/Event/91439.

****
2) BRIEF HIGHLIGHTS OF SCIENTIFIC PROGRAM
The following is a sampling of some of the 1,522 abstracts to be presented at the meeting.

TIDES AND WINDS
The role of tides in moving ocean water on Earth or triggering volcanos on Io or holding the Moon's face perpetually toward Earth is well studied; a new study looks at the role of tides in driving winds on planets and stars.
http://meetings.aps.org/Meeting/DFD08/Event/89734.

SHOCK-ABSORBING FOAMS
"Solid foams are commonly used to absorb shocks. We consider here the efficiency of liquid foams as kinetic energy absorbers..."
http://meetings.aps.org/Meeting/DFD08/Event/89945.

THE PHYSICS OF AUTOMOTIVE AIR FILTERS
"A model was developed to predict the removal of aerosol particles by automotive air filters..."
http://meetings.aps.org/Meeting/DFD08/Event/90840.

SAND DUNE MOTION
"Particle image velocimetry on the surface of moving dunes reveals the flux of creeping sand, while measurement of sand grains flying through the air quantifies the key mechanism that moves sand by wind: saltation..."
http://meetings.aps.org/Meeting/DFD08/Event/89740.

THE PHYSICS OF HUMAN TEARS
"We present recent progress in the understanding of the dynamics of the human tear film on the complex eye-shaped geometry..."
http://meetings.aps.org/Meeting/DFD08/Event/90651.

ANATOMY OF A SPLASH
"The impact of a drop onto a liquid layer and the subsequent splash has important implications for diverse physical processes such as air-sea gas transfer, cooling, and combustion..."
http://meetings.aps.org/Meeting/DFD08/Event/89712.

SWIMMING AND FLYING ANIMALS DO THE TWIST
"Free swimming and flying animals twist their wings. But why? We have carried out force and efficiency measurements with twistable finite fins in water..."
http://meetings.aps.org/Meeting/DFD08/Event/89557.

SPIDER THREAD
"We present the results of a combined theoretical and experimental investigation of spider capture thread. While the radial threads in a spider web are simply cylindrical, the circumferential threads are pre-wound helices immersed in a viscous fluid..."
http://meetings.aps.org/Meeting/DFD08/Event/89560.

HURRICANE SEASON ON JUPITER
"Jupiter's atmosphere has been active during the last year with the Great, Little, and Oval Red Spots merging, almost merging, or repelling each other. These jovian storms are all anticyclonic vortices..."
http://meetings.aps.org/Meeting/DFD08/Event/89733.

ANATOMY OF A JAM
Granular materials jamming in a chute or tube is a million-dollar issue; this work looks at the redesigning hopper geometry.
http://meetings.aps.org/Meeting/DFD08/Event/90327.

****
3) REGISTRATION FOR JOURNALISTS AND OTHER MEETING INFORMATION
The 61st Annual Division of Fluid Dynamics Meeting will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. All meeting information, including directions to the Convention Center is at:
http://dfd2008.tamu.edu/index.html.

USEFUL LINKS
Searchable form: http://meetings.aps.org/Meeting/DFD08/PersonIndex.
Local Conference Meeting Website: http://dfd2008.tamu.edu/index.html.
PDF of Meeting Abstracts:
http://flux.aps.org/meetings/YR08/DFD08/all_DFD08.pdf.
Division of Fluid Dynamics page: http://www.aps.org/units/dfd/.

PRESS REGISTRATION
Credentialed full-time journalist and professional freelance journalists working on assignment are invited to attend the conference free of charge. If you are a reporter and would like to attend, please contact Jason Bardi (jbardi@aip.org, 301-209-3091).

ONSITE MEETING PRESSROOM
The onsite Pressroom will be located in the Gonzales Convention Center. Pressroom hours are Monday-Thursday, 8:00-5:00 p.m. The location is to be determined. Press announcements and other news will be available in the pressroom.

VIRTUAL PRESS ROOM
The Virtual Press Room for the 61st Annual Division of Fluid Dynamics Meeting will contain tips on dozens of stories as well as stunning graphics and lay-language papers detailing some of the most interesting results at the meeting. Lay-language papers are roughly 500 word summaries written for a general audience by the authors of individual presentations with accompanying graphics and multimedia files. The Virtual Press Room will serve as starting points for journalists who are interested in covering the meeting but cannot attend in person. In mid-November, the Virtual Press Room will be launched and another news release will be sent out at that time.

GALLERY OF FLUID MOTION
Every year, the American Physical Society's Division of Fluid Dynamics hosts posters and videos that show stunning images and graphics from either computational or experimental studies of flow phenomena. The outstanding entries, selected by a panel of referees for artistic content, originality and ability to convey information, will be honored during the meeting, placed on display at the Annual APS Meeting in March of 2009, and will appear in the annual Gallery of Fluid Motion article in the September 2009 issue of Physics of Fluids.

This year, selected entries from the 26th Annual Gallery of Fluid Motion will be hosted as part of the Virtual Press Room for the 61st Annual DFD Meeting . In mid- November, when the Virtual Press Room is launched, another announcement will be sent out.

****

ABOUT THE DIVISION OF FLUID DYNAMICS
The Division of Fluid Dynamics of the American Physical Society (APS) exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure. See: http://www.aps.org/units/dfd/.

ABOUT AIP
The American Institute of Physics (AIP) is a not-for-profit organization chartered in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare. It is the mission of the Institute to serve physics, astronomy, and related fields of science and technology by serving its ten Member Societies and their associates, individual scientists, educators, R&D leaders, and the general public with programs, services and publications. See: http://www.aip.org/.

SECOND PRESS RELEASE

****
JUPITER'S SHRINKING RED SPOT, OIL SPILLS, SPREADING GERMS, FLEXIBLE FLYING MACHINES, AND THE MYSTERIES OF SAND RIPPLES ON MARS
Highlights of Fluid Dynamics Conference in San Antonio, November 23-25
****

For Immediate Release

For more information contact
Jason Socrates Bardi,
American Institute of Physics
301-209-3091
jbardi@aip.org

November 6, 2008 -- Ever since the ancient thinker Archimedes shouted "Eureka" in the tub, inspired as he watched the water spill out, scientist though the ages have solved many of life's mysteries by considering how fluids flow. Today, the field of fluid dynamics addresses some of the most important questions in modern astronomy, engineering, alternative energy, and medicine. Later this month, the largest scientific meeting of the year devoted to the dynamics of fluids convenes in San Antonio, Texas.

The 61st Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics takes place from November 23-25 at the San Antonio Convention Center and it brings together researchers from across the globe. Reporters are invited to attend the conference free of charge. Registration instructions and other information may be found at the end of this news release. Brief highlights of some of the more than 1,500 presentations at the meeting are listed below.

GENERAL HIGHLIGHTS OF THE MEETING

1) Jupiter's Great Red Spot is Shrinking
2) The Physics of Oil Spill Cleanups
3) Trapping Greenhouse Gasses (Without Leaks)
4) Are Flexible, Flapping Flying Machines in Our Future?
5) Walkers' Wakes Can Spread Germs in Airplanes
6) Pulsating Jets May Improve Jet Engine Performance and Efficiency
7) Modeling Embryonic Heart Development
8) Unlocking the Mystery of Martian Sand Ripples

****

1) JUPITER'S GREAT RED SPOT IS SHRINKING

The best map of wind speeds on Jupiter ever produced proves that the massive weather system known as the Great Red Spot has shrunken over the past dozen years. Understanding cloud patterns on distant planetary surfaces, such as those at Saturn or Jupiter, is potentially confusing because clouds deform over time. Using sophisticated software, scientists at the University of California at Berkeley have been able to take the deformations into account (and the much easier-to-deal-with factor of the planet's rotation) and have calculated the best velocity maps yet for the surface of Jupiter.

Using data recorded by the Galileo and Cassini spacecraft, views of Jupiter's surface have been made that essentially factor out the planet's rotation, simplifying our impression of what is happening to the cloud decks. For mid latitudes, the velocity resolution for this mapping procedure is 3 meters-per-second. For higher latitudes, the resolution is 3-6 meters-per-second. The maps consist of tens of millions of velocity measurements.

According to Berkeley scientist Xylar Asay-Davis these maps represent the highest resolution and highest accuracy full-planet map ever produced. With this approach, such meteorological features as the Great Red Spot or the Red Oval can be monitored more carefully than before. The high-precision velocity measurements show definitively that the Great Red Spot has shrunk over the past dozen years, says Asay-Davis.

Asay-Davis's talk, "Velocity Fields of Jovian Dynamical Features using the Advection Corrected Correlation Image Velocimetry Method" will be held at 8:13 a.m. on Sunday, November 23, 2008, in Ballroom B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/89732.

****

2) THE PHYSICS OF OIL SPILL CLEANUPS

Oil spills are a major environmental problem because they often occur at sea and in remote, ecologically-sensitive areas where their impact on birds, sea mammals and subsurface life may last for years. The best way to mitigate this damage is to clean up spills immediately, and typically this starts with skimming off as much oil as possible. Such cleanups may leave large areas covered with a thin slick of spilled oil, which is often dispersed by spraying the spill area with chemical "surfactants" that break the film into small oil droplets that are consumed by bacteria, dissolved, evaporated, or attached to small solid particles and sink to the bottom of the ocean.

When dispersants are spayed over a spill in the open sea, the turbulent mixing forced by ocean currents and the wind actually helps in the cleanup process, but how much such turbulence contributes is not completely understood scientifically. Up to now, the breakup of oil mixed with dispersants has not been thoroughly studied in the laboratory, and there is little information on how wind, weather, and other local conditions contribute to the effectiveness of a cleanup process.

Now Johns Hopkins graduate student Balaji Gopalan and his mentor Professor Joseph Katz have imaged the dispersion of tens of thousands of oil droplets in carefully controlled laboratory settings and observed the effect of local turbulence on this process. Pre-Mixing the oil with the commercial dispersant COREXIT 9527, they observed how it breaks into numerous tiny droplets smaller than the period at the end of this sentence. Following each droplet in three-dimensions, they observed how tails/thread like structure grew from its surface, the thickness of the tails being less than 17 micron in size, and the breakup of which could produce extremely small droplets.

This better understanding of the basic physics of the dispersion process should allow environmental

engineers to better predict how well dispersants will work in the field, says Gopalan, which should help inform decision makers during major oil spills. The work is part of a large collaboration between biologists, ecologists, physical oceanographers, computer modelers, and engineers, primarily associated with the Coastal Response Research Centre, that aims to model and predict the fate of oil after it spills, taking into account the properties of the oil, dispersant, weather conditions, and ecological data. In the future, an improved "response model" based on this larger collaboration may suggest the optimal approach to cleaning up any specific oil spill.

Gopalan's talk, "Formation of Long Tails during Breakup of Oil Droplets Mixed with Dispersants in Locally Isotropic Turbulence" will be held at 8:39 a.m. on Tuesday, November 25, 2008, in Room 101B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/91052

****

3) TRAPPING GREENHOUSE GASSES (WITHOUT LEAKS)

Of all the possible ways of reducing future greenhouse gas emissions, one of the most immediately feasible is carbon dioxide "sequestration," which involves compressing the gas into a liquid and piping it deep underground instead of releasing it into the atmosphere. The Earth has abundant geological formations known as saline aquifers that would seem to be ideal storage bins for such sequestered carbon.

However, says Jerome Neufeld of the University of Cambridge in England, if carbon sequestration is to play a major role in reducing greenhouse gas emissions, the process needs to be deployed on a global scale, and new tools will be needed to monitor the long-term stability and fate of trapped gas.

The principle of sequestration is simple. Saline aquifers are basically porous regions of rock soaked with brackish fluids. The density of carbon dioxide is much less than that of the brine, so gas pumped into the aquifer will rise through the porous rock until it hits an impermeable "cap" rock. Over very long time scales, trapped carbon dioxide will saturate the brine and become mineralized. But what happens in the short term? If you pump carbon dioxide into saline aquifers, will it stay put and mineralize or leak away completely?

Neufeld and his colleagues have created a simple tool to predict the fate of carbon dioxide "plumes" rising though aquifers after being pumped underground. Their model shows how the shape of rising plumes is influenced by the structure of the surrounding rock, and it suggests that there are advantages to injecting carbon dioxide into reservoirs that are like geological layer cakes, with alternating stacks of porous and seal rock. When a plume reaches an impermeable boundary, it spreads until it can rise again, filling out a shape that looks like an inverted Christmas tree. As the plume pools it mixes with the brine, ultimately resulting in a more stable long-term sequestration.

Neufeld's talk, "Plume dynamics in heterogeneous porous media" will be held at 11:48 a.m. on Tuesday, November 25, 2008, in Room 003A of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/91515.

****

4) ARE FLEXIBLE, FLAPPING FLYING MACHINES IN OUR FUTURE?

Modern aircraft have been fabulously successful with rigid wings and rotors. But just imagine the flying machines that would be possible if we could understand and harness the most efficient and acrobatic airfoils in nature: the flexible wings of the bat.

The aerodynamics of "compliant" structures, such as bat wings, are very complicated because both the structure and airflow change and adapt to each other in a highly nonlinear way. Bats' wing bones are even flexible, unlike those of birds, which gives the mammals added control but is an additional challenge for scientists trying to understand them. Kenny Breuer's research group at Brown University is designing a series of fundamental experiments that will allow scientists to isolate, observe and analyze a variety of specific flow-structure interactions that are important in understanding bat flight and, in general, the aerodynamics of compliant structures. Ultimately, Breuer expects that experiments like these will yield insights enabling new generations of flying machines that are impossible to consider today.

In his talk at the 61st Annual Meeting of the APS Division of Fluid Dynamics in San Antonio, Arnold Song, who is one member of this research group, will describe the basic motions -- and their aerodynamic implications -- that he and his colleagues at Brown have discovered so far by measuring how paddles and stretched ribbons of sailcloth vibrate in manmade breezes in a wind tunnel. As the airflow increases, for

example, a paddle on a post first twists and then flaps, like a stop sign being pummeled by hurricane-force winds. The ribbon's behavior is more complicated, but also essential for understanding how bat wings or other compliant structures generate lift so efficiently.

Song's talk, "On Vortex Induced Motion in Compliant Structures," will be held at 10:30 a.m. on Sunday, November 23, 2008, in Room 204B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/89974.

****

5) WALKERS' WAKES CAN SPREAD GERMS IN AIRPLANES

Airliner ventilation systems are designed to limit passengers' exposure to airborne particles -- from ill travelers' contagious germs to terrorists' aerosol biohazards. Vents in a plane's center ceiling direct air out and down toward the floor below the windows, creating a swirling flow pattern within each row of seats that effectively confines contaminants to a single row or, at worst, its next-row neighbors.

But new research at Purdue University has shown that anyone -- a flight attendant or a passenger, for instance -- merely walking down an airliner's aisle will disrupt this carefully designed flow pattern by creating a wake of eddies that can spread contaminants as far as 10 rows away. Moreover, lead scientist Michael Plesniak says, the eddies' interaction with the ventilation system's swirling flow creates a stagnant zone "at just the wrong place." The height of the stagnant zone is exactly where seated passengers breathe. Future research aims to devise ways for breaking up this stagnant zone and reducing the ability of wakes from people moving around the cabin to disperse contaminants.

In his presentation to the 61st APS Division of Fluid Dynamics in San Antonio, Plesniak will describe his team's research and how it is also helping to create a computational turbulence simulation software tool that airplane manufacturers and safety regulators could use to model complex, realistic cabin ventilation scenarios more rapidly and economically than is now possible. The tool could also be used to design ventilation systems for interiors of buildings, subways and tunnels.

Plesniak's talk, "Experimental Model of Contaminant Transport by a Moving Wake Inside an Aircraft Cabin," will be given at 5:06 p.m. on Monday, November 24, 2008, in Room 002A of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90679

****

6) PULSATING JETS MAY IMPROVE JET ENGINE PERFORMANCE AND EFFICIENCY

Actions similar to those of a pulsating water-massage shower head may lead to more effective control of rocket engines and cleaner, more efficient jet aircraft engines, UCLA scientists have discovered.

In her presentation to the 61st Annual Meeting of the APS Division of Fluid Dynamics in San Antonio, Juliett Davitian will describe new research into the behavior of "transverse" jets, which consist of gas or liquid injected into a crossflow of a similar fluid. Engine manufacturers use transverse jets to introduce gases into jet engines for reducing emissions or cooling the turbine blades. These jets are also used to control the thrust of rocket engines.

In some applications, rapid and thorough mixing of the jet and crossflow fluids is needed. In other cases, deep penetration of the jet into the crossflow is desired. Sometimes both characteristics are required. By studying the fluid-mechanical interactions between transverse jets and the crossflow under a wide range of controlled conditions, the UCLA scientists learned that pulsing the transverse jet fluid in sinusoidal or square-wave patterns, depending on the conditions and desired outcome, can greatly enhance mixing, penetration or both. Continuing research will explore the behavior of transverse jets of different densities, which have a wide range of practical applications in energy-generation devices, such as stationary power plants and utility burners.

Davitian's talk, "Open Loop Control of Self-Excited Transverse Jets," will be given at 5:15 p.m. on Sunday, November 23, 2008, in Room 002B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90049

****

7) MODELING EMBRYONIC HEART DEVELOPMENT

Congenital heart diseases affect one percent of newborn babies and babies who are lost in the prenatal period, and the malformation of the circulatory system is responsible for 10 percent of stillbirths.

To give scientists new insight into the developing heart, math biologist Laura Miller, an assistant professor

of mathematics at the University of North Carolina, along with mechanical engineer Arvind Santhanakrishnan and graduate student Anil Shenoy, constructed several dynamically scaled models of the embryonic heart within rigid plexiglass walls. The models represent the morphologies of different stages in heart development, and provide insight into the flow within the developing heart. Corresponding numerical simulations by Miller couple the electrophysiology to the flow patterns within a beating heart.

These physical and numerical models will help scientists gain a better understanding of the relationship between the fluid dynamics, electrophysiology, and biochemistry of the embryonic heart, which may allow doctors to detect the beginnings of congenital heart disease.

"The ultimate goal of the research would be to enable doctors to use electrocardiograms and ultrasounds for the early detection of congenital heart disease. It may also be possible to use techniques such as microfluidic surgery to correct problems in heart chamber and valve formation," Miller says.

Miller will describe the heart models in her talk, "Fluid-structure interaction and electrophysiology of the embryonic heart," at 10:43 am on Sunday, November 23, 2008, in Room 103A of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/89766.

****

8) UNLOCKING THE MYSTERY OF MARTIAN SAND RIPPLES

When the Mars Exploration Rover Opportunity landed on fresh Martian sand ripples in 2004, its on-board microscope showed the grains there to be much finer than predicted, revealing a major mystery to be solved. As on Earth, Mars' famous dust storms loft the finest particles high into the atmosphere, while coarser particles bounce along the surface, forming ripples and dunes. Well-established theories developed for Earth ripples in air and water and extended to Martian surface conditions predicted that the transitional particle diameter between these behaviors on Mars would four times that of Earth's. Yet they were essentially the same. Why was the established theory wrong for Mars?

Numerical simulations performed by a team at Cornell University now suggest a plausible answer. It turns out that the combination of the Martian atmosphere's low density -- 100 times less than Earth's -- and the higher wind speeds necessary to move grains of any size on Mars conspire to make Martian winds less effective than Earth's in lifting particles high into the air. The simulations showed why: Particles react more slowly to an upward turbulent eddy on Mars (due to low atmospheric density) and the eddies themselves pass by so much faster (due to the high wind speeds) that they don't have the combination of power and time to elevate the larger particles, even in Mars' lower gravity.

David Korda will describe the team's simulation results at the APS 61st Annual Meeting of the Division of Fluid Dynamics. Korda's colleagues are preparing physical experiments to use in a NASA-Ames wind tunnel that can imitate Martian atmospheric conditions to see if the simulation's prediction is accurate.

Korda's talk, "On the transition between saltation and suspension on Earth and on Mars," will be held at 11:35 on Monday, November 24, 2008, in Ballroom B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90601.

****

INFORMATION FOR JOURNALISTS

PRESS REGISTRATION

Credentialed full-time journalist and professional freelance journalists working on assignment are invited to attend the conference free of charge. If you are a reporter and would like to attend, please contact Jason Bardi (jbardi@aip.org, 301-209-3091).

ONSITE PRESS FACILITIES

A multipurpose space with a dedicated desk available for reporters will be located in the Gonzales Convention Center Ballroom A, which will be open from Sunday to Tuesday. Press announcements and other news will be available at this location.

CONTACTS

Listed below are email contacts for the researchers named in all the stories above.

1) JUPITER'S RED SPOT

Xylar Asay-Davis, University of California at Berkeley (xylar@astro.berkeley.edu)

2) OIL SPILLS
Balaji Gopalan, Johns Hopkins University (balaji@jhu.edu)
Joseph Katz, Johns Hopkins University (katz@jhu.edu)

3) TRAPPING GREENHOUSE GASSES
Jerome Neufeld, Cambridge University (j.neufeld@damtp.cam.ac.uk)

4) FLAPPING FLYING MACHINES
Kenny Breuer, Brown University (kbreuer@brown.edu) 401-863-2870;
Arnold Song, Brown University (Arnold_Song@brown.edu)

5) GERMS IN AIRPLANES
Michael Plesniak, George Washington University (plesniak@gwu.edu)
(NOTE: this work was done while Dr. Plesniak was at Purdue University)

6) PULSATING JETS
Juliett Davitian, UCLA (jdavitian@gmail.com).
Ann R. Karagozian, UCLA (ark@seas.ucla.edu)

7) EMBRYONIC HEART
Laura Miller, University of North Carolina (lam9@email.unc.edu)

8) MARTIAN SAND
David Korda, Cornell University (dtk9@cornell.edu)
Lance Collins, Cornell University (lc246@cornell.edu)

****
OTHER MEETING INFORMATION
The 61st Annual Division of Fluid Dynamics Meeting will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. All meeting information, including directions to the Convention Center is at: http://dfd2008.tamu.edu/index.html.

USEFUL LINKS
Searchable form: http://meetings.aps.org/Meeting/DFD08/PersonIndex.
Local Conference Meeting Website: http://dfd2008.tamu.edu/index.html.
PDF of Meeting Abstracts: http://flux.aps.org/meetings/YR08/DFD08/all_DFD08.pdf.
Division of Fluid Dynamics page: http://www.aps.org/units/dfd/.

VIRTUAL PRESS ROOM
The Virtual Press Room for the 61st Annual Division of Fluid Dynamics Meeting will contain tips on dozens of stories as well as stunning graphics and lay-language papers detailing some of the most interesting results at the meeting. Lay-language papers are roughly 500 word summaries written for a general audience by the authors of individual presentations with accompanying graphics and multimedia files. The Virtual Press Room will serve as starting points for journalists who are interested in covering the meeting but cannot attend in person. In mid-November, the Virtual Press Room will be launched and another news release will be sent out at that time.

GALLERY OF FLUID MOTION
Every year, the American Physical Society's Division of Fluid Dynamics hosts posters and videos that show stunning images and graphics from either computational or experimental studies of flow phenomena. The outstanding entries, selected by a panel of referees for artistic content, originality and ability to convey information, will be honored during the meeting, placed on display at the Annual APS Meeting in March of 2009, and will appear in the annual Gallery of Fluid Motion article in the September 2009 issue of Physics of Fluids.

This year, selected entries from the 26th Annual Gallery of Fluid Motion will be hosted as part of the Virtual Press Room for the 61st Annual DFD Meeting. In mid-November, when the Virtual Press Room is launched, another announcement will be sent out.

****

ABOUT THE DIVISION OF FLUID DYNAMICS
The Division of Fluid Dynamics of the American Physical Society (APS) exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure. See: http://www.aps.org/units/dfd/.

ABOUT AIP
The American Institute of Physics (AIP) is a not-for-profit organization chartered in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare. It is the mission of the Institute to serve physics, astronomy, and related fields of science and technology by serving its ten Member Societies and their associates, individual scientists, educators, R&D leaders, and the general public with programs, services and publications. See: http://www.aip.org/.

THIRD PRESS RELEASE

****
ROBOTIC HUMMINGBIRDS, BURROWING CLAMS, EMBRYONIC HEARTS, THE SECRETS OF

THE BAT'S FLAP, AND A DOLPHIN SWIMMING MYSTERY SOLVED
November 23-25 Fluid Dynamics Conference Features Animal and Biological Flows
****

For Immediate Release

For more information contact
Jason Socrates Bardi,
American Institute of Physics
301-209-3091
jbardi@aip.org

November 13, 2008 -- From dolphins to clams to flying creatures like hummingbirds and bats, many of nature's most fascinating creatures exhibit forms of fluid flow. When the 61st Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics takes place from November 23-25 at the San Antonio Convention Center, researchers from across the globe will describe cutting-edge research with applications in astronomy, engineering, alternative energy, biology, and medicine.

Reporters are invited to attend the conference free of charge. Registration instructions and other information may be found at the end of this news release. Several highlights from the more than 1,500 presentations at the meeting are listed below.

HIGHLIGHTS OF THE MEETING
1) Wind-Tunnel Studies Reveal Bat Flapping Secrets
2) Robotic Hummingbird Offers Insight into Hovering Flight
3) Dolphin Swimming Mystery Solved with Digital Imaging Technique

4) Engineers Unearth the Digging Secrets of Burrowing Clams
5) Are Flexible, Flapping Flying Machines in Our Future?
6) Modeling Embryonic Heart Development
7) Walkers' Wakes can Spread Germs in Airplanes

****
1) WIND-TUNNEL STUDIES REVEAL BAT FLAPPING SECRETS
Flapping flight evolved at least four times in evolutionary history, in birds, insects, Pterosaurs, and bats. Of the four, bats have the most flexible wings, controlled with extremely complex motions that scientists are only just beginning to understand.

To study the kinematics of bat flight, biologist Tatjana Hubel, a postdoctoral research scholar at Brown University, and her colleagues trained Lesser dog-faced fruit bats (Cynopterus brachyotis) to fly in a low-speed wind tunnel. As the bats flew, six high-speed cameras monitored both the motion of their wings and the air wake created by their flapping.

The researchers were able to simultaneously monitor the changing fluid structure of the wake generated by the bat's flapping wings and details of the wing motion, which "allows us to link the effect (the generated aerodynamic forces) with the cause (the actual motion of the wing) for the first time," Hubel says. The studies revealed that a vortex is generated at the tip of the bat's wing during the first third of its downstroke, then grows stronger, before dissipating during the latter half of the upstroke (with the wing beat cycle defined by the tip position). The vortex indicates that the bat's wings are generating lift; that the vortex dissipates, she says, shows that there is a part of the bat's flapping cycle when its wings are producing no lift at all--a pattern that is similar to that seen in small birds.

Hubel's talk, "Wake structure and wing motion in bat flight," is at 4:36 pm on Sunday, November 23, 2008, in Room 103B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/89996.

****

2) ROBOTIC HUMMINGBIRD OFFERS INSIGHT INTO HOVERING FLIGHT

The development of technologically sophisticated yet tiny aircraft--or micro air vehicles (MAV)--is a hot engineering topic, with researchers seeking new ways to add functional abilities to the craft. For example, says Humberto Bocanegra Evans, a graduate student in experimental fluid dynamics at New Mexico State University, "the creation of an MAV that has hovering capabilities would be of great help in reconnaissance missions into hostile territories or for the inspection of sites where human access is limited."

To explore the dynamics of hovering, Bocanegra Evans and his colleagues have focused on an animal that has perfected the technique: the hummingbird. He and his colleagues constructed a large scaled model of a rufous hummingbird, a common hummingbird species. In real life, the birds are about 3-4 inches long with a 4-inch wingspan; Bocanegra Evans's model has an 18.5-inch wingspan, with two 4.9-inch-long wings that are each controlled with two servo motors. One motor produces back and forth motions and the second changes the angle of attack of the wing. The robo-bird was "flown" in a large water channel seeded with tiny glass particles. A laser and camera tracked the particles as they flowed through the water as a result of the wing movements. From these particle trajectories, the scientists could determine the forces produced by the wings, "which will give us insight into how hovering is accomplished," Bocanegra Evans says. "By knowing the value of the forces at different wing positions, the production of lift and drag can be associated with specific kinematics."

Bocanegra Evans will discuss the preliminary results of the simulation in his talk, “Flight of a Rufous Hummingbird Robotic Model-PIV Measurements,” at 9:31 am on Monday, November 24, 2008, in Room 103B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90210.

****

3) DOLPHIN SWIMMING MYSTERY SOLVED WITH DIGITAL IMAGING TECHNIQUE

Since the 1930s, scientists have puzzled over the high speeds at which dolphins swim. Dolphins were not thought to be capable of generating enough thrust to overcome the drag they would experience at high speeds from the turbulent flow of water around their bodies--a conundrum known as Gray's paradox (after biologist Sir James Gray, who first noted it). That led biologists to speculate that dolphin skin must have unusual turbulence-reducing properties which let them swim fast.

Now, with the aid of a digital flow-tracking technology, fluid dynamicist Timothy Wei and his colleagues have, for the first time, directly addressed Gray's paradox--and proven it wrong.

Wei, a professor at Rensselaer Polytechnic University in New York, and his colleagues used Digital Particle Image Velocimetry (DPIV). In the technique, the fluid flow within a digital camera's field of view is determined by charting the movement of small particles distributed throughout the fluid. In experiments conducted at the Long Marine Laboratory at the University of California, Santa Cruz, the scientists measured the flows produced by two dolphins doing tailstands--a Sea World-worthy maneuver in which dolphins hold themselves vertically out of the water, using quick, strong oscillations of their tail. The data revealed that special skin wasn't necessary, because thrust produced by the dolphins' tails was "far more than necessary to overcome turbulent boundary layer drag," says Wei, who plans to use the DPIV technique to measure flow around other marine mammals. "These measurements create greater opportunities for addressing interesting and long-standing questions about swimming," he says.

Wei's talk, "DPIV measurements of dolphins performing tailstands," is at 8:13 am on Monday, November 24, 2008, in Room 102A of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90214.

****

4) ENGINEERS UNEARTH THE DIGGING SECRETS OF BURROWING CLAMS

Burrowing razor clams (Ensis directus) have the ability to tunnel into the sandy sea bottom with remarkable efficiency. According to Anette Hosoi, a professor of mechanical engineering at the Massachusetts Institute of Technology, the clams use 10 times less energy to dig and anchor themselves into the seafloor than the best man-made techniques currently used today.

To find out how the clams accomplish this, Hosoi, along with graduate student Amos Winter, visualized them in action. The scientists found that the clams open and close their shell in a synchronized manner as they dig. "By pushing itself UP with its foot before it digs down," Hosoi says, "the clam clears a space around the leading edge of the shell. Given the extra space, the sand at the leading edge of the shell can unpack." This "fluidizes" the normally solid seafloor in a small region surrounding their shells, so that it flows like a fluid.

Hosoi and her colleagues plan to design a robotic digger based on the method used by the clams. The goal, she says, "is to understand the fundamental mechanisms of optimized burrowing and then apply that to new anchoring technologies."

Winter will discuss the research in his talk, "Drag reduction mechanisms employed by burrowing razor clams (Ensis directus), at 9:44 am on Monday, November 24, 2008, in Room 203B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90331.

****
5) ARE FLEXIBLE, FLAPPING FLYING MACHINES IN OUR FUTURE?
Modern aircraft have been fabulously successful with rigid wings and rotors. But just imagine the flying machines that would be possible if we could understand and harness the most efficient and acrobatic airfoils in nature: the flexible wings of the bat.

The aerodynamics of "compliant" structures, such as bat wings, are very complicated because both the structure and airflow change and adapt to each other in a highly nonlinear way. Bats' wing bones are even flexible, unlike those of birds, which gives the mammals added control but is an additional challenge for scientists trying to understand them. Kenny Breuer's research group at Brown University is designing a series of fundamental experiments that will allow scientists to isolate, observe and analyze a variety of specific flow-structure interactions that are important in understanding bat flight and, in general, the aerodynamics of compliant structures. Ultimately, Breuer expects that experiments like these will yield insights enabling new generations of flying machines that are impossible to consider today.

In his talk at the 61st Annual Meeting of the APS Division of Fluid Dynamics in San Antonio, Arnold Song, who is one member of this group, will describe the basic motions -- and their aerodynamic implications -- that he and his colleagues at Brown have discovered so far by measuring how paddles and stretched ribbons of sailcloth vibrate in manmade breezes in a wind tunnel. As the airflow increases, for example, a paddle on a post first twists and then flaps, like a stop sign being pummeled by hurricane-force winds. The ribbon's behavior is more complicated, but also essential for understanding how bat wings or other compliant structures generate lift so efficiently.

Song's talk, "On Vortex Induced Motion in Compliant Structures," will be held at 10:30 a.m. on Sunday, November 23, 2008, in Room 204B of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/89974.

****
6) MODELING EMBRYONIC HEART DEVELOPMENT
Congenital heart diseases affect one percent of newborn babies and babies who are lost in the prenatal period, and the malformation of the circulatory system is responsible for 10 percent of stillbirths.

To give scientists new insight into the developing heart, math biologist Laura Miller, an assistant professor of mathematics at the University of North Carolina, along with mechanical engineer Arvind Santhanakrishnan and graduate student Anil Shenoy, constructed several dynamically scaled models of the embryonic heart within rigid plexiglass walls. The models represent the morphologies of different stages in heart development, and provide insight into the flow within the developing heart. Corresponding numerical simulations by Miller couple the electrophysiology to the flow patterns within a beating heart.

These physical and numerical models will help scientists gain a better understanding of the relationship between the fluid dynamics, electrophysiology, and biochemistry of the embryonic heart, which may allow doctors to detect the beginnings of congenital heart disease.

"The ultimate goal of the research would be to enable doctors to use electrocardiograms and ultrasounds for the early detection of congenital heart disease. It may also be possible to use techniques such as microfluidic surgery to correct problems in heart chamber and valve formation," Miller says.

Miller will describe the heart models in her talk, "Fluid-structure interaction and electrophysiology of the embryonic heart," at 10:43 am on Sunday, November 23, 2008, in Room 103A of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/89766.

****

7) WALKERS' WAKES CAN SPREAD GERMS IN AIRPLANES

Airliner ventilation systems are designed to limit passengers' exposure to airborne particles -- from ill travelers' contagious germs to terrorists' aerosol biohazards. Vents in a plane's center ceiling direct air out and down toward the floor below the windows, creating a swirling flow pattern within each row of seats that effectively confines contaminants to a single row or, at worst, its next-row neighbors.

But new research at Purdue University has shown that anyone -- a flight attendant or a passenger, for instance -- merely walking down an airliner's aisle will disrupt this carefully designed flow pattern by creating a wake of eddies that can spread contaminants as far as 10 rows away. Moreover, lead scientist Michael Plesniak says, the eddies' interaction with the ventilation system's swirling flow creates a stagnant zone "at just the wrong place." The height of the stagnant zone is exactly where seated passengers breathe. Future research aims to devise ways for breaking up this stagnant zone and reducing the ability of wakes from people moving around the cabin to disperse contaminants.

In his presentation to the 61st APS Division of Fluid Dynamics in San Antonio, Plesniak will describe his team's research and how it is also helping to create a computational turbulence simulation software tool that airplane manufacturers and safety regulators could use to model complex, realistic cabin ventilation scenarios more rapidly and economically than is now possible. The tool could also be used to design ventilation systems for interiors of buildings, subways and tunnels.

Plesniak's talk, "Experimental Model of Contaminant Transport by a Moving Wake Inside an Aircraft Cabin," will be given at 5:06 p.m. on Monday, November 24, 2008, in Room 002A of the San Antonio Convention Center. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90679

****

INFORMATION FOR JOURNALISTS

PRESS REGISTRATION

Credentialed full-time journalist and professional freelance journalists working on assignment are invited to attend the conference free of charge. If you are a reporter and would like to attend, please contact Jason Bardi (jbardi@aip.org, 301-209-3091).

ONSITE MEETING PRESSROOM

Dedicated press space in a private room with a desk will be available for reporters near registration and the exhibit hall in the Gonzales Convention Center. Press announcements and other news will be available at this location. A larger meeting room for conducting interviews will also be available as needed.

CONTACTS

Listed below are email contacts for the researchers named in all the stories above.

1) BAT FLAPPING SECRETS

Tatjana Hubel, Brown University (tatjana_hubel@brown.edu)

2) ROBOTIC HUMMINGBIRD
Humberto Bocanegra Evans, New Mexico State University (humbo@nmsu.edu)

3) DOLPHIN SWIMMING
Timothy Wei, Rensselaer Polytechnic Institute (weit@rpi.edu)

4) BURROWING CLAMS
Anette Hosoi, Massachusetts Institute of Technology (peko@MIT.EDU)

5) FLAPPING FLYING MACHINES
Kenny Breuer, Brown University (kbreuer@brown.edu) 401-863-2870;
Arnold Song, Brown University (Arnold_Song@brown.edu)

6) EMBRYONIC HEART
Laura Miller, University of North Carolina (lam9@email.unc.edu)

7) GERMS IN AIRPLANES
Michael Plesniak, George Washington University (plesniak@gwu.edu)
(NOTE: this work was done while Dr. Plesniak was at Purdue University)

****
OTHER MEETING INFORMATION
The 61st Annual Division of Fluid Dynamics Meeting will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. All meeting information, including directions to the Convention Center is at: http://dfd2008.tamu.edu/index.html.

USEFUL LINKS
Searchable form: http://meetings.aps.org/Meeting/DFD08/PersonIndex.
Local Conference Meeting Website: http://dfd2008.tamu.edu/index.html.
PDF of Meeting Abstracts:
http://flux.aps.org/meetings/YR08/DFD08/all_DFD08.pdf.
Division of Fluid Dynamics page: http://www.aps.org/units/dfd/.

VIRTUAL PRESS ROOM
The Virtual Press Room for the 61st Annual Division of Fluid Dynamics Meeting will contain tips on dozens of stories as well as stunning graphics and lay-language papers detailing some of the most interesting results at the meeting. Lay-language papers are roughly 500 word summaries written for a general audience by the authors of individual presentations with accompanying graphics and multimedia files. The Virtual Press Room will serve as a starting point for journalists who are interested in covering the meeting but cannot attend in person. In mid-November, the Virtual Press Room will be launched and another news release will be sent out at that time.

GALLERY OF FLUID MOTION
Every year, the American Physical Society's Division of Fluid Dynamics hosts posters and videos that show stunning images and graphics from either computational or experimental studies of flow phenomena. The outstanding entries, selected by a panel of referees for artistic content, originality and ability to convey information, will be honored during the meeting, placed on display at the Annual APS Meeting in March of 2009, and will appear in the annual Gallery of Fluid Motion article in the September 2009 issue of Physics of Fluids.

This year, selected entries from the 26th Annual Gallery of Fluid Motion will be hosted as part of the Virtual Press Room for the 61st Annual DFD Meeting. In mid-November, when the Virtual Press Room is launched, another announcement will be sent out.

****

ABOUT THE DIVISION OF FLUID DYNAMICS
The Division of Fluid Dynamics of the American Physical Society (APS) exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure. See: http://www.aps.org/units/dfd/.

ABOUT AIP
The American Institute of Physics (AIP) is a not-for-profit organization chartered in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare. It is the mission of the Institute to serve physics, astronomy, and related fields of science and technology by serving its ten Member Societies and their associates, individual scientists, educators, R&D leaders, and the general public with programs, services and publications. See: http://www.aip.org/.

FOURTH PRESS RELEASE

REPORTERS: A colorful image showing a golf ball in motion is available to the media. Contact: jbardi@aip.org. A video is available at: http://hdl.handle.net/1813/11586 --JSB

****
THE PHYSICS OF GOLF BALLS:
New Research Aims to Help Golfers by Producing Better Balls that Fly Farther
****

EMBARGOED -- Please do not distribute or report on the contents of this release prior to 6:00 p.m. Eastern time on Sunday, November 23, 2008.

For more information contact
Jason Socrates Bardi,
American Institute of Physics
301-209-3091
jbardi@aip.org

November 23, 2008 -- At the 61st Meeting of the American Physical Society's Division of Fluid Dynamics this week, a team of researchers from Arizona State University and the University of Maryland is reporting research that may soon give avid golfers another way to improve their game.

Employing the same sort of scientific approach commonly used to improve the design of automobiles, aircraft, ships, trains, and other moving objects, the team has used a supercomputer to model how air flows around a ball in flight and to study how this flow is influenced by the ball's dimples. Their goal is to make a better golf ball by optimizing the size and pattern of these dimples and lowering the drag golf balls encounter as they fly through the air.

"For a golf ball, drag reduction means that the ball flies farther," says ASU's Clinton Smith, a Ph.D. student who is presenting a talk on the research on Sunday, November 23, 2008 in San Antonio. Smith and his advisor Kyle Squires conducted in collaboration with Nikolaos Beratlis and Elias Balaras at the University of Maryland and Masaya Tsunoda of Sumitomo Rubber Industries, Ltd.

It's no secret that dimples improve the flight of a golf ball. Once in

flight, a golf ball experiences aerodynamic forces generated from the surrounding air flow as well as gravity. The latter constantly pulls it towards the ground, while the aerodynamic force in the direction of motion, or drag force, dictates the distance it travels. The main purpose of dimples is to reduce the drag and help the ball fly farther. Actually, dimpled golf balls experience about half the drag as those with no dimples.

Although the United States Golf Association (USGA) regulates the design of golfballs, laying out uniform size and weight specifications that all approved golf balls must meet, the dimple pattern is not regulated. It is one of the very few parts of the ball over which companies have freedom to change the design. But what pattern is best for lowering the drag?

Up to now, dimple design has been more of an art than a science. For many years, sporting goods companies would design their dimple patterns by simple trial and error, testing prototype after prototype against one another. The new study takes a different approach, asking how to design dimple size and pattern based on mathematical equations that model the physics of a golf ball in flight. Working out the solution to these equations -- even on the fastest personal computers today -- is not feasible since it would take more than 15 years of computing time just to get a glimpse of the flow around the golf ball for a fraction of a second.

Nikolaos Beratlis, a Ph.D. student at the University of Maryland, and his advisor Elias Balaras have been developing highly efficient algorithms and software to solve these equations on parallel supercomputers, which can reduce the simulation time to the order of hours. The number crunching for a typical computation, for example, takes approximately 300 hours using 500 fast processors running in parallel (normal desktop computers may have one or two slower processors).

The group’s work presented by Smith in San Antonio will summarize their research. So far, they have characterized air flow around a golf ball at the finest level of detail ever attempted, teasing out the drag at each exact location and showing how air flows in an out of each tiny dimple on a golf ball's surface as it spins through the air during flight.

In the end, they produced a model that reveals the physics of a flying golf ball with the greatest level of detail ever seen -- the first step in achieving the project's long-term goal of optimizing dimple design to realize the lowest drag possible. The next step, says Smith, is to extend the work by comparing different dimple designs.

New designs are still years away at best, however, so don't give up the driving range just yet.

The talk, "Direct Numerical Simulations of the Flow around a Golf Ball: Effect of Rotation" by will take place at 4:49 p.m. on Sunday, November 23, 2008 in Room 201 of the Gonzales Convention Center in San Antonio, TX. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90118

****

ABOUT THE MEETING

The 61st Annual Meeting of the American Physical Society's Division of Fluid Dynamics, which takes place from November 23-25 at the San Antonio Convention Center in Texas, is the largest scientific meeting of the year devoted to the dynamics of such fluids. It brings together

researchers from across the globe to present work with applications in astronomy, engineering, alternative energy, and medicine. For more information, please visit the APS Division of Fluid Dynamics Virtual Press Room. See: http://www.aps.org/units/dfd/pressroom/.

ABOUT THE DIVISION OF FLUID DYNAMICS
The Division of Fluid Dynamics of the American Physical Society (APS) exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure. See: http://www.aps.org/units/dfd/.

ABOUT AIP
The American Institute of Physics (AIP) is a not-for-profit organization chartered in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare. It is the mission of the Institute to serve physics, astronomy, and related fields of science and technology by serving its ten Member Societies and their associates, individual scientists, educators, R&D leaders, and the general public with programs, services and publications. See: http://www.aip.org/.

FIFTH PRESS RELEASE

REPORTERS: An image showing the simulated effect of a blast on a helmeted head is available to members of the news media. Send your requests to jbardi@aip.org -- JSB.

****
THE PHYSICS OF EXPLOSIVES AND BLAST HELMETS:
New Research Aims to Better Protect Against Improvised Explosive Devices
****

EMBARGOED -- Please do not distribute or report on the contents of this release prior to 10:30 a.m. Eastern time on Tuesday, November 25, 2008.

For more information contact
Jason Socrates Bardi,
American Institute of Physics
301-209-3091
jbardi@aip.org

November 25, 2008 -- Of all the threats facing U.S. soldiers in combat, among the most dangerous are roadside bombs and other improvised explosive devices (IED's). At the 61st Meeting of the American Physical Society's Division of Fluid Dynamics this week in San Antonio, Naval Research Laboratory (NRL) scientist David Mott is presenting research aimed at predicting the risk of traumatic brain injury for U.S. soldiers and other people who are wounded by improvised explosive devices.

There are a number of grave risks for people caught within the immediate blast radius of an explosion. These include severe brain trauma (e.g., concussion), pulmonary trauma (e.g., blast lung), and abdominal trauma (e.g., organ perforation or hemorrhage) caused by high values of blast overpressure; penetrating trauma caused by high velocity fragment impact; or severe blunt trauma (e.g., fractures and traumatic amputations) caused by lower velocity blunt impacts. For people who survive explosions, there is often significant risk of long-term injuries, including brain trauma if the shock wave acts as a blow to the head.

Mott and his NRL colleagues are developing sensors for Marine Corps battle helmets that will record blast events -- data that would provide the medical team better information for guiding triage and care immediately following a blast. The sensors could also store that history of trauma over the course of a deployment to help determine any potential cumulative effects.

"Our calculations support this effort by helping to understand what data we need in order to characterize the blast event and how to determine blast strength and directionality with a minimum of data recorded from the event," says

Mott. Ultimately, he adds, the work may also suggest ways of improving helmet designs to better deal with explosions.

The work Mott is presenting in San Antonio was a collaboration between teams of researchers at NRL and Canada-based Allen-Vanguard Technologies, Inc. In order to get a sense for how traumatic a head blow an explosion can be to someone wearing a ballistic helmet, the Allen-Vanguard team modified crash test dummies with sensors that could measure the pressure of a blast at various locations on the surface of the head. They fitted these modified dummies with standard Marine Corps lightweight helmets, and they placed them at various orientations and distances as few meters away from devices containing up to 5 kg of C4 (a powerful military-grade explosive).

The pressure waves these blasts generated are the same as someone standing near an improvised explosive device might actually experience, and the team collected data on dozens of scenarios varying the amount of explosive, mannequin orientation, and distance from the blast.

Part of what they found in the experiments was surprising, says Mott. The sensors measured variable pressures in the large explosions depending on whether they were on the front, back, or side of the mannequin relative to the explosion and whether they were covered by the helmet. An exposed sensor on the forehead, as expected, recorded its highest pressure when the blast approached the mannequin from the front. Paradoxically, the data showed that the peak pressures under the helmet were consistently on the side of the dummy's head facing away from the explosion.

To understand this result, Mott and his colleagues at NRL ran computer simulations that modeled the physics of a large blast in much finer detail than could be measured experimentally. They used a digital version of a crash dummy head, a digital representation of a helmet, and a standard set of equations to predict the motion of the propagating blast wave.

What they discovered was that a helmet can act as a focusing mechanism. If a shockwave from a blast hits a helmeted head, it can penetrate the gap between the helmet and head, travel up inside the helmet, and come down the other side to focus on the side of the head facing away from the explosion. There, facing away from the blast, it can combine with other shock waves wrapping around the outside of the helmet and produce even greater pressures than the side facing into the blast.

It is not yet proven whether this redistribution of blast pressure to the opposite side of the head substantially contributes to risk for brain injury, says Mott. There were certain simplifications in his models that made the computation more manageable but may not completely represent the true physics of an explosion. For instance, he modeled the head as a rigid body and not a slightly malleable one as it is in reality. And he modeled the helmet with no support system -- just a gap between the head and helmet.

Before testing different helmet configurations, says Mott, he and his colleagues will have to verify that they are accurately reflecting the physics. They expect the helmet support system to mitigate the effects of the focusing to some extent, but the experimental data support the argument that this focusing is present in the blast tests as well. If this turns out to be the case, the research may help suggest ways to redesign helmets with flanges or shields that would redirect shockwaves from nearby explosions away from the opposite side of the head.

The talk, "Blast-Induced Pressure Fields Beneath a Military Helmet for Non-Lethal Threats" by will take place at 9:31 a.m. on Tuesday, November 25, 2008 in Room 003B of the Gonzales Convention Center in San Antonio, TX. Abstract: http://meetings.aps.org/Meeting/DFD08/Event/90971

****

ABOUT THE MEETING

The 61st Annual Meeting of the American Physical Society's Division of Fluid Dynamics, which takes place from November 23-25 at the San Antonio Convention Center in Texas, is the largest scientific meeting of the year devoted to the dynamics of such fluids. It brings together researchers from across the globe to present work with applications in astronomy, engineering, alternative energy, and medicine. For more information, please visit the APS Division of Fluid Dynamics Virtual Press Room. See: http://www.aps.org/units/dfd/pressroom/.

ABOUT THE DIVISION OF FLUID DYNAMICS

The Division of Fluid Dynamics of the American Physical Society (APS) exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure. See: http://www.aps.org/units/dfd/.

ABOUT AIP

The American Institute of Physics (AIP) is a not-for-profit organization chartered in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare. It is the mission of the Institute to serve physics, astronomy, and related fields of science and technology by serving its ten Member Societies and their associates, individual scientists, educators, R&D leaders, and the general public with programs, services and publications. See: http://www.aip.org/.

6TH: PRESS RELEASE ON THE VIRTUAL PRESS ROOM

****
STUNNING GRAPHICS, VIDEOS, AND SCIENCE NEWS TIPS AVAILABLE NOW
Virtual Press Room for November 23-25 Fluid Dynamics Conference Now Open
****

For Immediate Release

For more information contact
Jason Socrates Bardi,
American Institute of Physics
301-209-3091
jbardi@aip.org

November 19, 2008 -- The virtual Press Room for next week's 61st Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics is now open. See http://www.aps.org/units/dfd/pressroom/.

On this page, you will find science news tips, stunning images, and cool videos depicting cutting-edge research with applications in engineering, technology, astronomy, alternative energy, biology, and medicine. Quick links:

- Image Gallery (http://www.aps.org/units/dfd/pressroom/gallery/index.cfm)
- Video Gallery (http://www.aps.org/units/dfd/pressroom/videos/index.cfm)
- Lay-Language papers* (http://www.aps.org/units/dfd/pressroom/papers/index.cfm)

*(Lay-language papers are short, 500-word summaries written for a general audience by scientists and packaged with accompanying graphics and multimedia files).

****
GENERAL MEETING INFORMATION
The 61st Annual Division of Fluid Dynamics Meeting takes place from November 23-25 and will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. All meeting information, including directions to the Convention Center is at: http://dfd2008.tamu.edu/index.html.

PRESS REGISTRATION
Credentialed full-time journalist and professional freelance journalists working on assignment are invited to attend the conference free of charge. If you are a reporter and would like to attend, please contact Jason Bardi (jbardi@aip.org, 301-209-3091).

ONSITE MEETING PRESSROOM
Dedicated press space in a private room with a desk will be available for reporters near registration and the exhibit hall in the Gonzales Convention Center. Press announcements and other news will be available at this location. A larger meeting room for conducting interviews will also be available as needed.

USEFUL LINKS
Searchable form: http://meetings.aps.org/Meeting/DFD08/PersonIndex.
Local Conference Meeting Website: http://dfd2008.tamu.edu/index.html.
PDF of Meeting Abstracts: http://flux.aps.org/meetings/YR08/DFD08/all_DFD08.pdf.
Division of Fluid Dynamics page: http://www.aps.org/units/dfd/.

****

ABOUT THE DIVISION OF FLUID DYNAMICS

The Division of Fluid Dynamics of the American Physical Society (APS) exists for the advancement and diffusion of knowledge of the physics of fluids with special emphasis on the dynamical theories of the liquid, plastic and gaseous states of matter under all conditions of temperature and pressure. See: http://www.aps.org/units/dfd/.

ABOUT AIP

The American Institute of Physics (AIP) is a not-for-profit organization chartered in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare. It is the mission of the Institute to serve physics, astronomy, and related fields of science and technology by serving its ten Member Societies and their associates, individual scientists, educators, R&D leaders, and the general public with programs, services and publications. See: http://www.aip.org/.

Media & Public Relations Report: ATTACHMENT 4

AMERICAN INSTITUTE OF PHYSICS

MEMO: Proposed AIP Media Services for APS Division of Fluid Dynamics
DATE: November 18, 2008

TO: James Brasseur (Pennsylvania State University), Jim Duncan (University of Maryland), and members of the American Physical Society's Division of Fluid Dynamics.

FROM: Jason Socrates Bardi, Manager, Member Society Media Services, and Alicia Torres, Director of Media and Government Relations, American Institute of Physics Media & Government Relations Division, One Physics Ellipse, College Park, MD 20740, jbardi@aip.org, 301-209-3091

Dear Jims,

Please find this REVISED memo as a final proposal from the American Institute of Physics (AIP) Media & Government Relations Division for media services for the American Physical Society's Division of Fluid Dynamics 61st Annual DFD Meeting, which takes place November 23–25, 2008 in San Antonio, Texas. We are very gratified by your interest in using our media services, and we would be delighted to help you begin the process of building publicity for your annual meeting.

The attached documents contain a final detailed breakdown of deliverables and costs. If you have any questions or need clarification on any issues, please do not hesitate to contact me. Also attached is a brief summary of work proposed for the 2009-2010 meetings.

We look forward to further discussions with the DFD-CMPR to advance a broader agenda for the DFD in the area of media & public relations.

Best,

j

Overview of AIP Media Services for APS Division of Fluid Dynamics (DFD) 2008 Annual Meeting

Earlier this year, The American Institute of Physics (AIP) Media & Government Relations Division proposed providing media services for the American Physical Society's Division of Fluid Dynamics 61st Annual DFD Meeting, which takes place November 23–25, 2008 in San Antonio, TX. Our original proposal was submitted on May 8, 2008 to Jim Brasseur, who is chair of the ad-hoc DFD Committee for Media & Public Relations (DFD-CMPR) and Jim Duncan, who is the chair of the planned committee that will coordinate local Media & Public Relations (local-MPR). After some discussion, the Division accepted the proposal, and AIP's effort, led by Jason Bardi, Manager, Member Society Media Services in the Media & Government Relations Division at AIP, began in the Summer of 2008.

This document amends that earlier proposal. Prepared by AIP shortly before the San Antonio meeting, its main purpose is to lay out the final scope of work and the associated fees.

Objective: Successful public relations efforts are built with the raw materials of work and time. Our long-term goal over the next several years is to raise public awareness of the science and engineering of fluid dynamics and its important role in society. The immediate objective is to promote the San Antonio meeting and to establish a basis for media outreach efforts at future DFD annual meetings. AIP has closely coordinated its efforts toward this end with a representative of the local-MPR committee (in consultation with a representative from the DFD-CMPR as needed). This document describes our efforts heading into San Antonio.

Cost of Services: This year, AIP will charge **a flat fee of $12,000 plus travel expenses** for media services for the San Antonio meeting. This fee is based on costs for generating, disseminating, and tracking meeting news releases; designing, implementing, and advertising a virtual press room; soliciting and processing Lay Language papers; and generating media attention for the Gallery of Fluid Motion. Our fee is calculated by considering the estimated total number of staff and management hours it will take for us to complete all the tasks.

Our quoted flat fee is final and will not change even if we write more news releases or spend more hours than estimated to perform the tasks mentioned below. The work performed based on this cost is as follows:

A) Interacting with the local MPR committee, AIP produced multiple **meeting news releases** on topics presented at the San Antonio conference, with the goal of generating news coverage of the research at the meeting in print, broadcast and Internet media. AIP distributed the releases to targeted lists of journalists and will follow-up with targeted efforts towards local reporters and national reporters. AIP will facilitate media inquiries, track news coverage of the meeting, and report back to the relevant committees after the meeting.

B) We generated the content for a **Virtual Press Room**, facilitated its design and helped to implement it. The Virtual Press Room will serve San Antonio and future meetings and is being designed according to elements elicited in meetings with representatives of the local MPR committee and the DFD-CMPR and the design elements dictated by APS. It will be linked to

from the meeting home page (http://dfd2008.tamu.edu/) and will offer reporters all relevant meeting news releases and other materials. Its template design would be covered by APS, and the site would be easily adaptable for future meetings.

C) In order to generate media attention for the **Gallery of Fluid Motion**, we are creating a news release highlighting some of the more interesting visuals and pitching a story on the Gallery to local and national media. We are also creating content and additional pages on the Virtual Press Room with the information.

D) For the San Antonio meeting, we invited several presenters who were not covered in our press releases to submit **Lay-Language papers**. This adds value to the Virtual Press Room. In future years, we could provide a more enhanced effort to involving lay language papers, making available as much layperson-friendly information on the conference as possible. Or we may eliminate this function in the interest of a leaner budget.

All the above activities have been carried out in close coordination with the local MPR committee. Future evolution of interactions with the DFD will be based on the experiences from this first year. We anticipate that in future years, we will continue to at least do news releases and maintain the Virtual Press Room as the basis of generating publicity for the meeting.

Details of AIP Deliverables and Costs for for the 2008 DFD Meeting

As a division of the American Physical Society, the Division of Fluid Dynamics is eligible for AIP's member society billing schedule, which is "at-cost." Our fee is calculated according to the estimated total number of staff and management hours it will take for us to complete the tasks involved and the average hourly staff cost ($100). This average is calculated based on the labor rate within AIP's Physics Resource Center.

Please note: our fee is a flat fee and a final quote. It will not change even if we write more news releases or spend more hours than estimated to perform the tasks mentioned below. AIP will invoice the Division after the meeting, in early December and present a report on our services to the Division by the end of January.

1) MEETING PRESS RELEASES ($8,000)

News releases are essential for generating meeting publicity. While it is impossible to predict how much publicity such releases will generate, our experience suggests that factual, well-written news releases are the best starting points for reaching out to journalists. They provide self-contained, complete stories that news organizations can either post to their websites or provide a well-developed story idea which journalists can use to conduct interviews and research for original stories on the research topic.

This work begins with selecting particular presentations to cover in the releases. Our proposal was drafted with the assumption that AIP would work closely with the local-MPR committee to identify interesting abstracts and that the local committee would make the first cut, selecting potential abstracts after input from AIP. AIP would then choose a subset of these to research, write, edit, vet, distribute, promote, and track. We originally proposed preparing a general news release along with a few single-topic news releases, and our final efforts have more than lived up to that.

> The **General News Releases** provide an overview of the meeting and contain several brief (100-300 word) summaries of individual abstracts, sessions, or other meeting topics. The general news releases would provide an opportunity to convey the "big picture" and summarize a number of papers. These will be widely disseminated about 4-6 weeks prior to the meeting.
>
> 1-3 additional **Single-Topic News Releases** will focus in more depth upon individual themes or presentations rather than the meeting as a whole. These could be on the subject of a single abstract (e.g., "Tulane professor shows how unstable water flow may have contributed to Katrina levee breaks") or they could be summaries of several talks across several sessions, all related to a single area (e.g., "Biomedical breakthroughs discussed at 2008 fluid dynamics meeting").

As discussed above, our calculated hours reflect that we would work closely with local MPR committee for the annual meeting to help them make the first selection of papers that have maximum newsworthiness and are scientifically solid. Specific details include:

> **WRITING/EDITING:** Each presentation covered in the general release and each single-topic release will be written and edited in-house and then fact-checked with the scientists involved and their institutional PR staff. Then copies will be sent to relevant DFD members for final edits. Any changes made at this stage will be checked again with the scientists as appropriate, and then the release will be sent out.

DISTRIBUTION: Using AIP's subscription to the Cission Media database, we will distribute the releases to a tailored list of several hundred science, medical, and health reporters, as well as to a targeted list of San Antonio- and Texas-area reporters and trade-journal publishers. In addition to making the news release available for the conference website, we will distribute the news release via the Internet-based Newswise service (www.newswise.com) and Eurekalert (www.eurekalert.org), which are regularly read by reporters at many media outlets.

PITCHING: We will make phone calls and send targeted emails to selected reporters to encourage them to cover the meeting in person and via the Virtual Press Room. We will make a special effort to get local reporters to cover the meeting.

HANDLING MEDIA REQUESTS: Media requests will be handled on-site and remotely. AIP will be available to facilitate all media requests that come in during the meeting and direct reporters to conference presenters, conference officials, and volunteers through email and telephone. In the beginning, we cannot expect an overwhelming response from the start by reporters wishing to attend the meeting in person. Reporters these days often do not attend meetings in person unless it is a meeting they go to every year or one where they know there will either be a huge breaking news story being reported at a press conference during the meeting. This is not the same for reporters who are based in the city where the meeting is being held. In the future, AIP and the local-MPR committee will have to work out procedures for handling local reporters.

2) VIRTUAL PRESS ROOM ($2,000 one-time flat fee for writing the text and facilitating the process)

The Virtual Press Room is essential to helping reporters cover the science—especially those who will not be attending the meeting (the majority). We can never guarantee that any reporters will write about meeting presentations, but in our experience, the easier we make it for them to gather the information they need to report on the meeting, the more likely we will be successful in our PR efforts. The Virtual Press Room aims to make covering the meeting remotely as easy as possible.

Basically the Virtual Press Room will be a web site that contains content relevant to the press. This content includes the **AIP-generated news releases** along with aggregated information on attending the meeting (linking to existing conference pages where possible). It will also include **lay language papers** (see below) and a separate page with the release and/or highlights of the **2008 Gallery of Fluid Motion**.

DESIGN: The Virtual Press Room design will be done by APS in collaboration with AIP staff with input from and in close coordination with the local MPR committee and other committees as relevant and useful (e.g., the DFD Media & Public Relations and Education/Outreach committees). The basic design costs will be borne by APS, and the design will be general enough to update for use year-after-year.

NAVIGATION: the Virtual Press Room will be linked to from the San Antonio conference home page and from the appropriate APS Division of Fluid Dynamics pages.

HOSTING: APS will host the virtual press room on the APS.org domain.

DELIVERY: AIP will deliver the content and APS will mark up and post the pages.

3) GALLERY OF FLUID MOTION ($1,000)

To generate media attention to the **Gallery of Fluid Motion**, we propose to write a news release

announcing the Gallery to local and national reporters, pointing to some of the more interesting subjects in the Gallery. We would host this release on a page within the Virtual Press Room, the design of which would be covered by the scope of work for the virtual press room.

4) LAY LANGUAGE PAPERS ($1,000)

The Virtual Press Room will also include a page and templates for **lay language papers**. These are roughly 500 word summaries written by the authors of individual presentations with accompanying graphics and multimedia files. They serve as starting points for journalists who are interested in covering the meeting but cannot attend in person. In the past, we have enjoyed success at enhancing our media relations efforts by inviting such lay language papers from conference attendees. They provide more depth and can broaden the number and type of abstracts we offer to the media, since the news releases we write will generally only cover a few percent of the abstracts at a meeting.

For the San Antonio meeting, we invited about a dozen presenters not covered in our press releases to submit lay language papers. This adds value to the Virtual Press Room. In future years, we could provide a more enhanced effort to involving lay language papers, making available as much layperson-friendly information on the conference as possible. Or we may eliminate this function in the interest of budget.

This year, AIP solicited about 12 papers from meeting presenters with input from the local MPR committee, edited them, submitted them to APS to be marked up as HTML and posted. Specifically, we engaged in the following activities:

> **SOLICITING:** Two months or so before the meeting, AIP solicited about a dozen lay-language papers and provided detailed written guidelines for writing them to conference presenters. (This resulted in about eight being submitted). The criteria for selecting lay-language papers is the same as that used for selecting the abstracts for the general and single-topic releases, and we worked with the local MPR committee to select them.
>
> **DESIGN:** APS deesigned a page for hosting the papers. This page was integrated with the Virtual Press Room and hosted on the same server. It lists the lay language papers and links to pages designed for the papers themselves. The costs associated with this design are borne by APS. In future years, conferences could update the templates.
>
> **EDITING/MARKUP:** AIP copy edited the lay-language papers and mark them up for posting on the lay-language paper page.
>
> **DELIVERY:** APS will mark up and post the Lay-Language papers.
>
> **ADVERTISING:** We will include in our news release on the Virtual Press Room a link to the lay-language web site.

SUMMARY OF COST ESTIMATE

This year, the AIP would like to propose a flat fee of $12,000 plus travel expenses for media services for the San Antonio meeting based on costs for performing the following:

1) Generating, disseminating, and tracking meeting news releases ($8,000);
2) Designing, implementing, and advertising a virtual press room ($2,000);
3) Generating media attention for the Gallery of Fluid Motion ($1,000); and
4) Lay Language paper solicitation, editing, etc. ($1,000)
5) Travel expenses (estimated at around $1,000+)

Attachment One: 2009/2010 Meeting Cost Overview

For the next two years, AIP would like to propose a flat fee of $10,000 for media services for the annual meeting based on costs for performing the following:

1) Generating, disseminating, and tracking meeting news releases ($8,000);
2) Updating content and advertising a virtual press room ($1,000). The content of this Virtual Press Room would include:
    a. News releases generated in function (1)
    b. Images and videos covered in function (3)
    c. Links to relevant Web sites
    d. Meeting information
3) Compiling images and video content and writing a news release to generate media attention for the Gallery of Fluid Motion ($1,000).

NOTE: These costs DO NOT include Lay Language Papers or travel to the meetings. If those functions are to be fulfilled, funds for them will have to be provided on top of the $10,000 fee.

In a related effort, we hope to work with Jim Brasseur and the DFD-CMPR to develop additional outreach activities as warranted and evaluate the success of our activities on a year-by-year basis. Some years, for instance, there may be breaking news about which we choose to host a press conference. If the Division identifies topics (e.g., papers in journals) that are worthy of a single news release throughout the year, AIP could write and disseminate throughout the year for a fee ($1,000/release). We may also find that the Gallery of Fluid Motion is a popular site with the media, warranting additional efforts to do media outreach related to it at other times of the year.

The overall goal will be to build a "following" of reporters who will be receptive to our PR efforts and interested in reporting the science presented at the meeting and throughout the year.

Report to the APS DFD Executive Committee
by the
Prize Committee
November 17, 2008

Committee members: Martin Maxey (Chair), Guenter Ahlers, Daniel Lathrop, Moshe Matalon (Vice Chair), Gareth McKinley, Charles Meneveau, Laurette Tuckerman

The Prize Committee was requested by the Chair of DFD to consider a proposal, discussed at the May teleconference of the Executive Committee, to introduce a new APS Award in Fluid Dynamics. The Prize Committee was requested to formulate the criteria for the award and consider naming of the award. The proposal is to use available DFD funds towards the endowment of this new award.

In November 2003, an earlier report (copy attached) to the Executive Committee had recommend that the then APS Fluid Dynamics Prize and the Otto Laporte Lectureship Award be combined. In 2004 and subsequently, the APS has awarded annually the Fluid Dynamics Prize with the awardee giving the Otto Laporte Lecture. There were several factors leading to this decision.

In April 2002, an APS Task Force on Prizes and Awards presented its report to the APS Council. This report and an earlier report in 1998 set out a requirement, adopted in the bye-laws, that Prizes should have a stipend of at least $10,000 and that Awards should have a minimum stipend of $5,000. The funding available to support the FDP and the OLA were not sufficient to meet these conditions and it would only be possible for the endowed funds to support one prize.

Another consideration was that the existing criteria for the FDP and the OLA were barely distinguishable. Both were based on distinction in research, with no significant qualifier. The possibility of raising the OLA to the level of a prize was briefly discussed but discounted due to a lack of funds and a further consideration. Namely, that DFD and the fluid dynamics community were not sufficiently large to support two annual prizes at the highest distinction, comparable in stature to other highly prestigious Prizes of the APS such as the Heineman Prize, the Onsager Prize or the Buckley Prize.

The Prize Committee began its discussion taking these points into consideration. There was an initial consensus among a majority of the Committee that the addition of a new award would have positive benefits. The Fluid Dynamics Prize has evolved to be primarily a career level award recognizing major, outstanding accomplishments in one or more fields over a number of years. The award of the Prize for a single, recent major accomplishment is possible but in all likelihood would have to be truly exceptional. This means that the Prize is generally not accessible for mid-career scientists at a stage where recognition of excellence by their peers would have an impact on careers and on fluid dynamics. The creation of a new Award, as opposed to a Prize, would help to fill this gap. Also by setting new criteria it would not detract from the Fluid Dynamics Prize.

In the past two years, there has been an excellent pool of nominees for the FDP and it has been a challenge to make a final selection. This is as it should be.

Unfortunately, it is likely that a number of deserving individuals will go unrecognized by an award at any stage in their career.

The APS structure for Prizes and Awards specifies that while a specific Division (or group of Divisions) may have primary responsibility for recommending an awardee for a prize it does not "own" the prize. An APS prize is open to anyone, whether they are a member of a specific division or even of APS.

Criteria for the proposed award

The Committee was able to come to a conclusion on the criteria for the proposed award and for the general terms of the award. This is stated below.

The "to be named" Award

To honor an outstanding research contribution in fluid dynamics made within the last 10 years. The award consists of $5,000 and a certificate citing the contribution made by the recipient(s). It will be presented annually.

Establishment & Support

This prize was established in 2008 from an endowment fund contributed by the DFD and held by the APS.

Rules & Eligibility

This award is given for a particularly influential contribution to fundamental fluid dynamics. It is intended to honor recent achievements of especially high impact and significance, a particular discovery or an innovation in the field rather than a large or lifetime body of work of an individual. The award shall be ordinarily made to one individual, but may be shared by two or three if all the recipients have contributed to the same accomplishment. There is no limitation on the age of the nominee(s), but the contribution that is being honored must have been published within the past ten years. The award shall ordinarily be given to persons with no restrictions placed on the candidate's citizenship or country of residence. Nominations will be held for three consecutive years, but will not be considered once the 10 year limit passes. The award to a previous recipient must be justified by outstanding contributions that are different from those for which the previous award was given.

Nomination & Selection Process

Nominations are solicited from the membership and should be submitted to the Vice-Chair of the DFD Prize & Award Committee by …..(date)….

The nomination package should include:

- A letter of not more than 1,000 words evaluating the nominee's qualifications and identifying the contribution that is being honored.
- The publications that describe the particular discovery, including reprints (if not available on the Internet) and a list of related articles.
- Biographical sketches.
- At least two, but not more than four, seconding letters.

The consensus was that the Prize Committee should make recommendations on both the FDP and the new award. In order to separate these though, the Vice-Chair would coordinate the review of nominations for the award and a separate deadline would be used for the award.

As additional background to this recommendation, we considered the increased membership of DFD and the relation of this proposal to other Prizes awarded by APS.

Membership: In the past 5 years there has been a significant growth in the membership of the Division. In 2004, the membership of DFD was 1596 and in 2008 it is now 2735. DFD has experienced the most rapid growth of any of the 14 Divisions and now ranks as number four. DCMP is the largest with 5592 members, DPF has 3470 members and DAMOP has 2832. Mostly the Divisions have had relatively constant membership levels. A significant number of the membership is from outside of the United States. There is no specific data on this but an impression can be obtained from the registrations for the Tampa meeting in 2006 where 393 (27%) of the 1,457 registrants were from overseas. Demographics of the membership and other details are attached.

Other APS Prizes: The APS has 29 prizes, 7 of which are only awarded in alternate years, and 11 awards. A summary list from APS is attached. Five of the prizes, including the Heineman Prize for mathematical physics and the Onsager Prize for theoretical statistical physics (including quantum fluids), are APS-wide and not linked to a specific Division. The Buckley Prize is the responsibility of the DCMP. These three prizes (Heineman, Onsager and Buckley) are presented at the APS March meeting. It is not unusual for a prize to be awarded to more than one individual. Some of the other prizes could really be classified as awards.

A sample of prizes and awards with Divisions is attached, including a description for Fluid Dynamics Prize. The proposal to add a new award would be similar to the structure of prizes and awards for the Division of Plasma Physics. DCMP awards a second "prize" each year in addition to the Buckley Prize.

The Batchelor Prize was awarded for the first time in August, 2008 and presented at the ICTAM to Howard Stone (Harvard). ICTAM is held every 4 years so if the prize is awarded only at these meetings it would be on a 4-year cycle. The conditions for the prize have similarities to the proposal here for the new award.

Other considerations:

1. Will the likely pool of nominees for the proposed award be sufficiently strong to support an award each year? An option is to make an award in alternate years.
2. The status of the award should be reviewed after 5 years and every 10 years thereafter.
3. When a proposal is presented to APS on the new award, the question of using DFD funds to support the endowment of the award should be clarified. The bye-laws would indicate that year to year funding by a division is not permitted except to initiate an award or prize.
4. A prize, or an award, usually carries with it an allowance for travel expenses to attend the meeting. Even if DFD provides the funds to endow the stipend additional funds should be raised to support these other expenses.

Naming of the proposed award

The Committee was not able to reach a clear consensus (at the time of this report) on the naming of the new award. Some members of the committee expressed the view that the Otto Laporte name has an established legacy of past award holders and that the name should be used for the new award. Other members of the committee held the view that while the Otto Laporte Award indeed has a distinguished record of past awardees this has now passed to a larger record including the Fluid Dynamics Prize. The Prize winner gives the Otto Laporte lecture and there would be problems in unraveling the link between the two. Finally, the new award would have different criteria from the FDP or previous OLA.

The Committee agreed that the stature of the new award will depend on the awardees selected over the coming years.

Attached documents

1. Report of Ad Hoc Committee on Fluid Dynamics Prize and Otto Laporte Award (November, 2003)

2. APS Unit Demographics, 2008

3. Yearly APS Unit membership, 2004-2008

4. Registrations, listed by country, for the DFD meeting held in Tampa, November 2006

5. Table of APS Prizes and Awards

6. Examples of APS Prizes and other Awards

7. Summary list of past awardees of the FDP and OLA

Recommendations of the APS Ad Hoc Committee on Fluid Dynamics Prize and Otto Laporte Award (the "committee")

G. Ahlers, R. W. Bilger, P. E. Dimotakis, J. Foss (Vice Chair), C. H. Gibson, M. Y. Hussaini, R. W. Metcalfe (Chair), R. D. Moser, T. Wei

(November 20, 2003)

A summary of the committee's deliberations was already presented to the DFD Executive Committee (ExCom) by the committee Chair Ralph Metcalfe. Unfortunately Ralph can not be present at the DFD ExCom meeting on Nov. 22, 2003. For that reason Ralph and the ExCom Chair Fazle Hussain asked me (G.A.) to present the committee's recommendations at the ExCom meeting. In this communication I would like to summarize in more detail the primary rationale that led to the main conclusions of the committee.

As a starting point for the consideration of the DFD Prize/Award structure, one needs to consider the APS definition of the difference between Prizes and Awards. The APS Bylaws state:

APS Bylaws Regarding Prizes and Awards ARTICLE IV- PRIZES AND AWARDS
1. Definitions. - Prizes shall be awarded by the Society to recognize and reward outstanding research accomplishments and should carry a substantial minimum stipend. Awards may recognize a broader range of achievement (not excluding notable physics research) and may be restricted to a specific category or class of physicists. An Award should normally carry a more modest stipend than a Prize.

Based on the last sentence of the previous paragraph one has to conclude that Awards, including our Otto Laporte Award (OLA), are in a category generally considered in some sense inferior to the Prize category and that they serve a different purpose. However, our criteria for selection are nearly the same for the OLA and the Division of Fluid Dynamics Prize (DFDP). For both, research is the primary consideration and at present we do not consider such things as service to the community, etc. which (according to the APS) can be included in the selection for an Award. Thus, our criteria for both the OLA and the DFDP are much closer to the criteria for Prizes. Consequently an early unanimous but tentative conclusion of the committee was that the OLA should be elevated to the category of a Prize. Selection criteria for both the OAL and the DFDP should be based on scientific accomplishments, and there should be no age restrictions (see the report by Ralph for more detail). Needless to say, this would need, in sequence, DFD Executive Committee and then APS approval.

Soon, however, the committee became aware of two problems:

1.) The APS has set the goal that the stipend for a Prize shall be $10,000 or more. We do not have an endowment sufficiently large to generate $20,000 per year. Required would be about $500,000, which seems well out of reach. In fact, at present our resources are not even adequate to generate $10,000 for the DFDP.

2.) Our community is not large enough to support TWO Prizes of the **highest distinction**, comparable in stature to other highly prestigious Prizes of the APS such as the Heineman Prize, the Onsager Prize, the Buckley Prize, etc. I will use the Buckley Prize as an example in the following more detailed discussion:

None of the APS Prizes are "owned" by any division. However, the DCMP is most closely associated with the Buckley Prize. DCMP has a membership of approximately 5000.

DFD has a membership of approximately 1200. DFD is most closely associated with TWO Prizes/Awards.

One may argue that DCMP members also share in Prizes only peripherally related to the DCMP, e.g. the Onsager Prize etc.

Members of our community also have shared in Prizes generally associated with other APS Divisions. Examples are:

1997 Lars Onsager Prize: Richard H. Kraichnan Citation: "For his deep contributions and sustained leadership in the field of turbulence theory. His quantitative predictions for the inverse cascade in two-dimensional turbulence, his treatment of passive scalar transport, and his direct interaction approximation are landmark achievements."

1999 Buckey Prize: Sidney Robert Nagel Citation: "For his innovative studies of disordered systems ranging from structural glasses to granular materials" (note that work on granular materials has produced a significant number of contributions to the annual DFD meeting in recent years).

Conclusion: The odds of getting a DFD Prize/Award are about a factor of 8 greater than the odds of getting the Buckley Prize of the DCMP.

The stature and prestige of a Prize is determined by how exceptional it is, and by the stature of the previous recipients. Of course we agree that the DFD Prize/Award recipients are all individuals of truly outstanding stature; but can we really expect the rest of the world to believe that we have eight times as many truly great individuals (when normalized by the membership count) as the DCMP? I think not. One must conclude that the DFD Prizes/Awards at present are not of the same stature as the Buckley Prize, the Onsager Prize, the Heineman Prize, etc. This can be changed only by combining the OLA and the DFDP into a single truly significant DFD Prize. This would also increase the resources available for the generation of a stipend more nearly in line with the APS goal of $10,000.

In view of the above, a majority of the committee finally agreed, and the committee now recommends, that the OPA and the DFDP be combined into a single Division of Fluid Dynamics Prize with the maximum endowment that can be achieved with available resources. The committee recognized that this is a major change for the DFD, and that there may be significant sentiment against taking this action. But the majority of the committee felt that our Division is not served best by sentimental considerations and adherence to the past. Rather the majority felt that a fundamental change in the Division's Prize/Award structure would be in the best interest of the Division by elevating the stature of the DFDP to a level more nearly equal to that of other major APS Prizes.

Respectfully submitted by Guenter Ahlers, committee member.

OFFICIAL 2008 UNIT MEMBERSHIP STATISTICS (Run date: 01/17/2008, numbers may differ slightly from official counts due to timing of report*)

UNIT	2008*	% of APS	Regular	Rg Fel	Senior	Sr Fel	Student	Junior	Life	Lf Fellow	Total Fellows	Male	Male Fellow	Female	Female Fellow	Gender not Given
DIVISIONS																
Atomic, Molecular, Optica	2837	6.13%	1543	390	197	105	749	121	227	103	598	2202	559	257	33	378
Astrophysics	2115	4.57%	1038	247	153	61	729	45	150	51	359	1582	329	286	29	247
Biological	1887	4.08%	978	198	68	32	630	89	122	48	278	1494	256	303	21	90
Condensed Matter	5595	12.09%	3224	822	321	170	1322	200	528	216	1208	4319	1130	500	68	776
Computational Physics	2131	4.61%	1217	235	41	13	651	80	142	50	298	1670	272	195	23	266
Chemical Physics	1785	3.86%	1058	307	127	57	394	47	159	71	435	1302	393	239	38	244
Fluid Dynamics	2736	5.91%	1396	189	97	39	953	184	106	37	265	2186	247	263	13	287
Laser Science	1368	2.96%	746	228	49	27	411	41	121	62	317	1031	295	151	20	186
Materials	2458	5.31%	1364	371	92	57	729	74	199	100	528	1862	481	290	43	306
Nuclear Physics	2631	5.69%	1487	349	265	136	595	106	178	81	566	2027	534	280	28	324
Physics of Beams	1213	2.62%	864	244	100	41	112	22	115	42	327	998	309	85	16	130
Particles & Fields	3474	7.51%	2074	541	293	135	714	95	298	127	803	2756	753	280	45	438
Polymer Physics	1257	2.72%	648	157	58	36	414	74	63	30	223	928	205	171	16	158
Plasma Physics	2499	5.40%	1637	367	159	67	445	86	172	71	505	2211	480	156	21	132
TOPICAL GROUPS																
Few Body Systems	320	0.69%	192	97	34	22	47	11	36	19	138	264	128	28	10	28
Gravitation	1019	2.20%	480	70	53	16	392	37	57	21	107	812	96	110	10	97
Hadronic Physics	366	0.79%	215	50	15	7	104	13	19	5	62	313	60	36	2	17
Instr & Measurement Sci	607	1.31%	333	48	37	19	185	15	37	13	80	492	75	41	4	74
Magnetism	839	1.81%	403	86	37	22	314	35	50	28	136	636	126	94	8	109
Plasma Astrophysics	370	0.80%	207	69	15	5	104	11	33	20	94	303	86	47	7	20
Precision Meas/Fund Co	420	0.91%	259	85	41	20	60	17	43	23	128	336	119	29	7	55
Quantum Information	885	1.91%	310	42	14	5	485	46	30	14	61	704	58	109	3	72
Shock Comp of Cond Ma	407	0.88%	282	41	30	9	55	19	21	4	54	348	53	28	0	31
Statistical & Non-linear	947	2.05%	501	120	30	13	298	48	70	30	163	758	152	98	11	91
FORUMS																
Education	4653	10.06%	2717	357	504	151	843	199	390	111	619	3378	553	617	61	658
Graduate Student Affairs	3356	7.25%	100	11	1	0	3131	116	8	1	12	2482	8	696	4	178
History of Physics	3929	8.49%	1728	247	695	253	1037	148	321	105	605	3026	573	328	29	575
Industrial/Applied	6751	14.59%	3354	360	560	146	1995	326	516	136	642	5148	592	663	46	940
International	3617	7.82%	1807	338	346	138	982	209	273	119	595	2704	549	440	43	473
Physics & Society	5818	12.57%	2800	469	888	330	1372	277	481	166	965	4429	893	674	70	715
SECTIONS																
Four Corners	1272	2.75%	637	102	108	35	354	79	94	33	170	1017	165	148	5	107
California	2311	4.99%	973	96	129	46	945	176	88	22	164	1770	145	316	18	225
Southeastern	2742	5.93%	1352	221	354	119	672	146	218	77	417	2103	393	276	22	363
New England	2419	5.23%	1037	141	337	102	702	123	220	53	296	1757	278	257	15	405
Northwest	1163	2.51%	565	67	135	49	319	75	69	19	135	900	126	133	8	130
New York State	2445	5.28%	1112	193	298	81	685	138	212	72	346	1798	328	250	16	397
Ohio	1504	3.25%	702	90	157	38	449	79	117	30	158	1116	148	167	9	221
Texas	1537	3.32%	780	114	149	38	416	63	129	26	178	1149	172	147	6	241

OFFICIAL 2008 UNIT MEMBERSHIP STATISTICS

UNIT										
	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
DIVISIONS										
Atomic, Molec & Optical	2,525	2,582	2,703	2,780	2,832	5.84%	5.94%	5.94%	6.01%	6.12%
Astrophysics	1,759	1,789	1,901	1,979	2,114	4.07%	4.12%	4.18%	4.27%	4.57%
Biological	1,668	1,682	1,783	1,850	1,881	3.86%	3.87%	3.92%	4.00%	4.07%
Computational	2,004	1,925	1,985	2,049	2,129	4.63%	4.43%	4.36%	4.43%	4.60%
Condensed Matter	5,410	5,380	5,292	5,387	5,592	12.51%	12.38%	11.63%	11.64%	12.09%
Chemical	1,815	1,758	1,742	1,788	1,782	4.20%	4.04%	3.83%	3.86%	3.85%
Fluid Dynamics	1,596	1,580	2,610	2,655	2,735	3.69%	3.64%	5.73%	5.74%	5.91%
Polymer	1,278	1,232	1,252	1,342	1,254	2.95%	2.83%	2.75%	2.90%	2.71%
Laser Science	1,321	1,295	1,330	1,331	1,363	3.05%	2.98%	2.92%	2.88%	2.95%
Materials	2,228	2,259	2,315	2,419	2,453	5.15%	5.20%	5.09%	5.23%	5.30%
Nuclear	2,420	2,401	2,452	2,519	2,624	5.59%	5.52%	5.39%	5.44%	5.67%
Physics of Beams	1,165	1,144	1,227	1,180	1,210	2.69%	2.63%	2.70%	2.55%	2.62%
Particles & Fields	3,299	3,291	3,368	3,371	3,470	7.63%	7.57%	7.40%	7.28%	7.50%
Plasma	2,520	2,489	2,518	2,520	2,498	5.83%	5.73%	5.53%	5.44%	5.40%
TOPICAL GROUPS										
Few Body Systems	324	341	330	327	320	0.75%	0.78%	0.72%	0.71%	0.69%
Fundamental Constants	378	398	415	433	419	0.87%	0.92%	0.91%	0.94%	0.91%
Gravitation	654	729	817	921	1,018	1.51%	1.68%	1.79%	1.99%	2.20%
Hadronic	268	304	337	355	366	0.62%	0.70%	0.74%	0.77%	0.79%
Instr & Measure Sci	545	548	582	601	606	1.26%	1.26%	1.28%	1.30%	1.31%
Magnetism	680	677	705	778	836	1.57%	1.56%	1.55%	1.68%	1.81%
Plasma Astrophysics	258	274	343	365	370	0.60%	0.63%	0.75%	0.79%	0.80%
Quantum Information		218	557	755	886		0.50%	1.22%	1.63%	1.91%
Shock Compression	379	335	379	367	407	0.88%	0.77%	0.83%	0.79%	0.88%
Statistical & Non-Linear	789	808	841	895	944	1.82%	1.86%	1.85%	1.93%	2.04%
FORUMS										
Education	4,087	4,214	4,421	4,598	4,646	9.45%	9.70%	9.71%	9.93%	10.04%
Graduate Student Affairs	1,128	1,827	2,426	2,865	3,343	2.61%	4.20%	5.33%	6.19%	7.23%
History	3,141	3,389	3,725	3,854	3,928	7.26%	7.80%	8.18%	8.33%	8.49%
Indust & Applied	5,431	5,792	6,364	6,644	6,740	12.55%	13.33%	13.98%	14.35%	14.57%
International	2,588	2,853	3,246	3,437	3,608	5.98%	6.56%	7.13%	7.42%	7.80%
Physics & Society	4,624	4,845	5,311	5,548	5,805	10.69%	11.15%	11.67%	11.98%	12.55%
SECTIONS										
California	1,054	1,369	1,904	2,072	2,305	2.44%	3.15%	4.18%	4.48%	4.98%
Four Corners	862	911	1,025	1,113	1,260	1.99%	2.10%	2.25%	2.40%	2.72%
New England	1,872	1,965	2,234	2,327	2,413	4.33%	4.52%	4.91%	5.03%	5.22%
New York State	1,871	1,938	2,167	2,290	2,436	4.33%	4.46%	4.76%	4.95%	5.26%
Northwest	829	916	1,038	1,106	1,160	1.92%	2.11%	2.28%	2.39%	2.51%
Ohio	1,132	1,211	1,375	1,516	1,498	2.62%	2.79%	3.02%	3.27%	3.24%
Southeastern	1,905	2,069	2,323	2,544	2,728	4.40%	4.76%	5.10%	5.50%	5.90%
Texas	1,214	1,226	1,353	1,502	1,534	2.81%	2.82%	2.97%	3.24%	3.32%

Official 2008 APS Membership - 46269 2007-46293 2006 - 45519 2005 - 43462 2004 - 43258

American Physical Society

59th Annual Meeting of the Division of Fluid Dynamics - Tampa, Florida Nov 19, 2006 to Nov 21, 2006

Active Registrations by Country

Category	Count	Percentage	Category	Count	Percentage
Algeria	2	0.14%	Japan	59	4.02%
Argentina	1	0.07%	Jordan	1	0.07%
Australia	7	0.48%	Mexico	12	0.82%
Austria	2	0.14%	Morocco	1	0.07%
Belgium	10	0.68%	Netherlands	31	2.11%
Canada	29	1.97%	Norway	3	0.20%
Chile	1	0.07%	Poland	1	0.07%
China	1	0.07%	Russia	2	0.14%
Czechoslovakia	1	0.07%	Singapore	1	0.07%
Denmark	5	0.34%	South Korea	18	1.23%
Finland	1	0.07%	Spain	19	1.29%
France	66	4.49%	Sri Lanka	1	0.07%
Germany	18	1.23%	Sweden	10	0.68%
Greece	1	0.07%	Switzerland	3	0.20%
Hong Kong	6	0.41%	Taiwan	6	0.41%
India	2	0.14%	Tunisia	1	0.07%
Iran	1	0.07%	Ukraine	1	0.07%
Ireland	1	0.07%	United Kingdom	45	3.06%
Israel	14	0.95%	United States	1,064	73.25%
Italy	9	0.61%			

Prizes and Awards Information

Name	Amount	First yr	EISP**	Comment
Prizes				
*Allis	$5,000	1989	DAMOP	ionized gass, even numbered year
Bethe	$7,500	1998	DAP/DNP	annual
*Biological	$5,000	1981	DBP	even numbered year
Bonner	$7,500	1964	DNP	annual
*Broida	$5,000	1979	DAMOP/DCP	odd numbered year
Buckley	$10,000	1952	DCMP	annual
Davisson-Germer	$5,000	1965	DAMOP/DCMP	annual
Einstein	$10,000	1999	TGG	odd numbered year
Faculty Research	$5,000	1984	FED	addt'l $5000 to recip. Inst., annual
Fluid dynamics	$10,000	1979	DFD	annual
Heineman	$7,500	1959	APS/AIP	mathematical physics, annual
*Isakson	$5,000	1979	DCMP	even numbered year
*Langmuir	$10,000	1964	DCP	odd numbered year
Lilienfeld	$10,000	1988	APS-wide	lecturing excellence, annual
Maxwell	$10,000	1975	DPP	annual
McGroddy	$5,000	1999	DMP	1975 name change in 1999
Onsager	$15,000	1995	APS-wide	starting in 1997 awarded annual
Pais	$10,000	2005	FHP	history of physics research, annual
Pake	$5,000	1983	FIAP	industrial management, annual
Panofsky	$5,000	1985	DPF	annual
Plyler	$10,000	1976	DCP	experiment, annual
Polymer	$10,000	1960	DPOLY	annual
*Rabi	$7,500	1989	DAMOP	odd numbered year
Rahman	$5,000	1992	DCOMP	annual
Sakharov	$10,000	2006	APS	even numbered year
Sakurai	$5,000	1984	DPF	theory, annual
Schawlow	$10,000	1991	DLS	annual
*Valley	$20,000	2000	APS-wide	must have degree 5yrs or less prior deadline
Wilson	$5,000	1986	DPF/DPB	annual
#(prizes) 29				
average prize amt.	**$7,931**			**average without Valley = $ 7,500**
Awards				
Plasma Excell.	$5,000	1981	DPP	annual
Keithley	$5,000	1998	GIMS	annual
Apker	$5,000	1978	APS-wide	$5K to recip. Dept., $2K to finalist, $1K to finalist dept
-LaPorte	$5,000	1985	DFD	no longer awarded, merged with Fluids Prize
Goeppert-Mayer	$2,500	1985	CSWP	women, annual
*Pipkin	$2,000	1997	GFC	odd numbered year
*Shock comp	$5,000	1987	GSCCM	odd numbered year
*Wheatley	$2,000	1991	FIP	3rd world, odd numbered year
Burton	$3,000	1997	FPS	annual
Szilard	$1,000	1974	FPS	soc. Benefit, annual
Education	$5,000	2006	FED	annual
#(awards) 11				
average award amt.	**$3,681**			
Medals and lectureships				

Dillon	$2,000	1983	DPOLY	annual
Nicholson	$ -	1994	FPS/DPP	teaching, annual
Bouchet	$3,500	1994	COM	minorities, annual
Adler	$2,000	1988	DMP	annual

* Awarded biennually
** Entity Involved in Selection Procedure

Examples of APS Prizes and Awards by Division (Members-2008)

Fluid Dynamics (2735)

Fluid Dynamics Prize

To recognize and encourage outstanding achievement in fluid dynamics research. The prize consists of $10,000, an allowance for travel to the meeting at which the prize is awarded, and a certificate citing the contributions made by the recipient. It will be presented annually.

This prize was established in 1979 with support from the Office of Naval Research. In 2004, the Otto Laporte Award was combined with the Fluid Dynamics Prize so that the Division of Fluid Dynamics would have a single major prize - the Fluid Dynamics Prize. The prize is now supported by the Division of Fluid Dynamics, friends of Otto Laporte and the American Institute of Physics journal, *Physics of Fluids*.

This prize is awarded for outstanding contributions to fundamental fluid dynamics research. The prize shall ordinarily be awarded to one person but may be shared when all the recipients have contributed to the same achievement. The award of the prize to a previous recipient of the Fluid Dynamics Prize or of the Otto Laporte Award must be justified by outstanding contributions that are different from those for which the previous award was given. This prize is awarded solely for valuable contributions made in the field of Fluid Dynamics with no restrictions placed on a candidate's citizenship or country of residence. Nominations are active for three years.

Awards made internally by DFD

Andreas Acrivos Dissertation Award in Fluid Dynamics
François Frenkiel Award for Fluid Mechanics

Note: Otto Laporte Award

In 2004, the Otto Laporte award was combined with the Fluid Dynamics Prize so that the Division of Fluid Dynamics would have a single major prize - the Fluid Dynamics Prize. The award had originally been established as a division lectureship to recognize outstanding contributions to fluid dynamics and to honor Otto Laporte.

Plasma Physics (2498)

James Clerk Maxwell Prize for Plasma Physics

To recognize outstanding contributions to the field of plasma physics. The prize consists of $10,000 and a certificate citing the contributions made by the recipient. A travel allowance to attend the meeting at which the prize is to be presented is also provided. The prize will be presented annually.

Establishment & Support: The prize was established in 1975 by the Maxwell Technologies, Inc., in honor of the Scottish physicist, James Clerk Maxwell and is currently sponsored by General Atomics.
Rules & Eligibility: The prize shall be for outstanding contributions to the advancement and diffusion of the knowledge of properties of highly ionized gases of natural or laboratory origin. The prize shall ordinarily be awarded to one person but a prize may be shared when all the recipients have contributed to the same accomplishments. Nominations are active for three years.

John Dawson Award for Excellence in Plasma Physics Research

To recognize a particular recent outstanding achievement in plasma physics research. The award consists of $5,000 to be divided equally in the case of multiple recipients, and includes a certificate citing the contributions made by the recipient or recipients, to be presented at an award ceremony at the Division of Plasma Physics Annual Meeting Banquet. It will be awarded annually.

Prior to 2007, this award was originally named Award for Excellence in Plasma Physics.

Establishment & Support: This award was established in 1981 with support from friends of the Division of Plasma Physics.
Rules & Eligibility: Nominations are open to scientists of all nationalities regardless of the geographical site at which the work was done. It may be a given to a set of individuals as well as to individual scientists, as appropriate, to honor those who make essential contributions to the cited research achievement. Nominations are active for three years.

Condensed Matter Physics (5592)

Oliver E. Buckley Condensed Matter Prize

To recognize and encourage outstanding theoretical or experimental contributions to condensed matter physics. The prize consists of $10,000 and a certificate citing the contributions made by the recipient or recipients. It will be awarded annually.

Frank Isakson Prize for Optical Effects in Solids

To recognize outstanding optical research that leads to breakthroughs in the condensed matter sciences. The prize consists of $5,000, an allowance for travel to the meeting of the Society at which the prize is being presented and a certificate citing the contributions made by the recipient. The prize is awarded biennially in even-numbered years as a memorial to Frank Isakson.

Davisson-Germer Prize in Atomic or Surface Physics

To recognize and encourage outstanding work in atomic physics or surface physics. The Prize consists of $5,000 and a certificate citing the contributions made by the recipient or recipients.
This prize will normally be awarded in even numbered years for outstanding work in atomic physics and odd numbered years for outstanding work in surface physics. (See Atomic Physics Division)

Biological Physics (1881)

Max Delbruck Prize in Biological Physics

To recognize and encourage outstanding achievement in biological physics research. The prize consists of $10,000, an allowance for travel to attend the meeting at which the prize is awarded, and a certificate citing the contributions made by the recipient or recipients. It is presented biennially in even-numbered years.

Atomic, Molecular and Optical Physics (2832)

Davisson-Germer Prize in Atomic or Surface Physics

To recognize and encourage outstanding work in atomic physics or surface physics. ($5,000)

Herbert P. Broida Prize

To recognize and enhance outstanding experimental advancements in the fields of atomic and molecular spectroscopy or chemical physics. ($5,000)

Rabi Prize in Atomic, Molecular and Optical Physics

To recognize and encourage outstanding research in Atomic, Molecular and Optical Physics by investigators who have held a Ph. D. for 10 years or less. ($7,500, awarded alternate years)

Outstanding Doctoral Thesis Research in Atomic, Molecular, or Optical Physics

To recognize doctoral thesis research of outstanding quality and achievement in atomic, molecular, or optical physics and to encourage effective written and oral presentation of research results. ($2,500 + $500 travel)

Will Allis Prize for the Study of Ionized Gases

The prize was established in recognition of the outstanding contributions of Will Allis to the study of ionized gases. ($5,000, awarded alternate years)

Batchelor Prize

The Batchelor Prize, sponsored by *Journal of Fluid Mechanics,* is an award initially of US$25,000 to be presented at the International Congress of Theoretical and Applied Mathematics (ICTAM), taking place in Adelaide in August 2008. The recipient of the prize will deliver a lecture at ICTAM and this will also be published in *Journal of Fluid Mechanics* and be made freely available on the Cambridge Journals website. The prize will be awarded by a committee whose members are internationally distinguished in fluid mechanics.

Eligibility

1. The prize is to be awarded on each occasion to a single individual.
2. No individual should win the prize more than once.
3. The research recognised by the award will normally have been published during the ten-year period prior to the date of the award (e.g. during the period 1998-2007 inclusive for the prize to be awarded in 2008). The intention is thus that younger researchers should be as eligible for consideration as those who are more established, and that the work recognised by the award should be of great current interest (representing, for example, an emerging field of application of fluid mechanics or a significant breakthrough in an established branch of the subject).

Note: ICTAM is held every four years.

Fluid Dynamics Prize Recipients and Otto Laporte Lecturers

Fluid Dynamics Prize
To recognize and encourage outstanding achievement in fluid dynamics research. The prize consists of $10,000, an allowance for travel to the meeting at which the prize is awarded, and a certificate citing the contributions made by the recipient. It will be presented annually.

This prize was established in 1979 with support from the Office of Naval Research. In 2004, the Otto Laporte award was combined with the Fluid Dynamics Prize so that the Division of Fluid Dynamics would have a single major prize - the Fluid Dynamics Prize. The prize is now supported by the Division of Fluid Dynamics, friends of Otto Laporte and the American Institute of Physics journal, *Physics of Fluids*.

This prize is awarded for outstanding contributions to fundamental fluid dynamics research. The prize shall ordinarily be awarded to one person but may be shared when all the recipients have contributed to the same achievement. Nominations are active for three years.

Fluid Dynamics Prize Recipients:

2008: Julio M. Ottino
2007: Guenter Ahlers
2006: Thomas S. Lundgren
2005: Ronald J. Adrian
2004: George M. (Bud) Homsy
2003: Jerry Gollub
2002: Gary Leal
2001: Howard Brenner
2000: Friedrich Hermann Busse
1999: Daniel D. Joseph
1998: Fazle Hussain
1997: Louis Norberg Howard
1996: Parviz Moin
1995: Harry L Swinney
1994: Stephen H. Davis
1993: Theodore Yao-tsu Wu
1992: William R. Sears
1991: Andreas Acrivos
1990: John L. Lumley
1989: William W. Willmarth
1988: Galen B. Schubauer
1987: Anatol Roshko
1986: Robert T. Jones
1985: Chia-Shun Yih
1984: George Carrier
1983: Stanley Corrsin
1982: Howard W. Emmons
1981: Philip S. Klebanoff
1980: Hans Wolfgang Liepmann
1979: Chia Chiao Lin

Otto Laporte Lecture

2003: Norman J. Zabusky
2002: Andrea Prosperetti
2001: John Kim
2000: Hassan Aref
1999: Eli Reshotko
1998: David G. Crighton
1997: Marvin Emanuel Goldstein
1996: Donald Coles
1995: Katepalli R. Sreenivasan
1994: Philip G. Saffman
1993: Robert Kraichnan
1992: William C. Reynolds
1991: Steven A. Orszag
1990: Tony Maxworthy
1989: Chia-Shun Yih
1988: Akiva M. Yaglom
1987: J. Trevor Stuart
1986: Milton Van Dyke
1985: Hans W. Liepmann
1984: Sir James Lighthill
1983: John W. Miles
1982: Peter Wegener
1981: H. W. Emmons
1980: R. Byron Bird
1979: Stanley Corrsin
1978: Cecil E. Leith, Jr.
1977: Y. C. Fung
1976: George F. Carrier
1975: Russell J. Donnelly
1974: J.M. Burgers
1973: Chia C. Lin
1972: Richard G. Fowler