



A Division of the American Physical Society

THE 63RD ANNUAL DFD MEETING

November 21-23, 2010 Long Beach, California



Photo courtesy of the Long Beach Convention and Visitors Bureau

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The articles in this issue represent the views of the Division of Fluid Dynamics (DFD) publication committee and are not necessarily those of individual DFD members or the APS.

The 63rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD) will be held in Long Beach, California from November 21st to 23rd, 2010. The meeting will be hosted by four local schools: University of Southern California, California Institute of Technology, California State University Long Beach, and University of California Los Angeles.

Meeting Venue

The meeting will be held at the Long Beach Convention Center located in downtown Long Beach at the waterfront. The Convention Center is adjacent to the main meeting hotel, the Hyatt Regency Long Beach. The Convention Center is conveniently located close to the Aquarium of the Pacific, where the Sunday reception will be held, retailers, dining facilities, live music venues, and arts and cultural exhibitions. There are over 100 quality restaurants within an eight block radius in downtown Long Beach, ranging from sidewalk cafes to elegant dining establishments with spectacular city and harbor views. Additionally, there are concession stands in the Convention Center and the Hyatt. Oral presentations will be held in rooms on the first and second levels of the Convention Center and in the Hyatt.

The Grand Ballroom will be used for the awards ceremony and the invited talks. Exhibits, the Gallery of Fluid Motion, and refreshment breaks will be held in the Promenade Ballroom and the adjacent foyer. This area will be served by a wireless hot spot available to registrants.

Long Beach

Long Beach is the second largest city in Southern California. It is home to more than 450,000 residents and is the 5th largest city in the state of California. Pine Avenue & The Pike at Rainbow Harbor are in the center of town and home to over 100 restaurants within walking distance of the Convention Center in every price category and type. Among cultural attractions are the Museum of Latin American Art and the Long Beach Museum of Art. Local tourist attractions include the Queen Mary, The Sky Room, Rancho Los Alamitos and many others within a 30-60 minute drive, e.g., Disneyland, Hollywood, Beverly Hills, Universal Studios, and Southern California beach cities. Nearby Catalina Island, known for its spectacular views and marine life, is accessible from the Long Beach pier via high-speed catamaran and is a one hour ride. Please visit Long Beach online at <http://www.visitlongbeach.com> for more information.

Housing and Meeting Registration

Registration for the meeting and housing are available through the meeting website: <http://dfd2010.org> or <http://www.dfd2010.caltech.edu>. Registration is scheduled to open in mid-June, and links for hotel accommodations are open now. The APS/DFD meeting sessions will be held at the Long Beach Convention Center and the Hyatt Regency Long Beach. Rooms have been reserved at the Hyatt Regency Long Beach as well as three other hotels within walking distance of the meeting. The organizers urge the participants to stay at one of the meeting hotels listed below. This makes it possible to keep the registration fees for the meeting as low as possible. APS/DFD attendees are encouraged to make reservations ONLINE using the links provided. Please mention APS or the American Physical Society when making reservations by phone or FAX in order to receive the reduced rate. Rooms are set at the reduced rate until October 19th or as long as space is available.

Hyatt Regency Long Beach

200 South Pine Avenue

Hotel Phone: 562-491-1234

Reservations: 402-592-6464 or 888-421-1442

Fax: 562-624-6002

<http://resweb.passkey.com/go/APS2010LB>

\$189.00 + tax, Single/Double

\$214.00 + tax, Triple

\$239.00 + tax, Quad

The Westin Long Beach

333 East Ocean Boulevard

Hotel Phone: 562-436-3000

Reservations: 1-800-WESTIN1 / (1-800-937-8461)

Reservations by FAX are not accepted

<http://www.starwoodmeeting.com/StarGroupsWeb/res?id=0911163112&key=9678>

\$169.00 + tax, Single/Double

\$194.00 + tax, Triple

\$219.00 + tax, Quad

Renaissance Long Beach Hotel

111 East Ocean Boulevard

Hotel Phone: 562-437-5900

Reservations: 1-800-MARRIOTT (1-800-627-7468)

Fax: 562-753-2153

<http://cwp.marriott.com/lgbrn/aps>

\$169.00 + tax, Single/Double

\$184.00 + tax, Triple

\$199.00 + tax, Quad

Marriott Courtyard Long Beach Downtown

500 East First Street

Hotel Phone: 562-435-8511

Reservations: 800-228-9290

*Reservations by FAX are not accepted
On-line reservations available in mid-June;
see <http://dfd2010.org> for details.*

\$129.00 + tax, Single/Double

\$139.00 + tax, Triple

\$149.00 + tax, Quad

Key Dates

Mid June

Meeting registration opens

Check <http://dfd2010.org> for more information

October 11th

Early meeting registration rates end

October 12th thru November 18th

Regular registration rates apply

November 8th

Cancellation deadline (no refunds after this date)

November 18th

On-site meeting registration required after this date and on-site registration rates apply

Hotels

June 1st

Reservations open (reduced rates)

October 19th (earlier if rooms sell out)

Reduced rates end

Abstracts

June 1st – August 6th

Abstract submissions accepted

Financial Support

August 6th

Travel grant application due to APS/DFD

Gallery of Fluid Motion

September 13th

Email intent to submit poster or video before this date

October 15th

Video submission deadline

Scientific Program

This year's scientific program will include three award lectures, invited lectures, minisymposia and focused sessions, contributed papers, poster sessions, exhibits, and the Gallery of Fluid Motion. More than 1600 contributed abstracts, divided into up to 24 concurrent sessions, are anticipated.

Awards Program

Each year the APS Division of Fluid Dynamics presents the Fluid Dynamics Prize, the Francois Frenkiel Award, and the Andreas Acrivos Dissertation Award. The 2010 award winners will be announced in the Fall. Each award winner will give a lecture at the meeting.

Invited Lectures, Minisymposia, and Focused Sessions

Approximately eight invited lectures on topics of broad interest to the DFD community will be given by experts in the field. The program will also include minisymposia and focus sessions dealing with exciting current research. The topics may also include fluid dynamics education, international research, and tutorials/reviews. The specific minisymposia/focus sessions and speakers will be announced on the meeting website closer to the meeting.

Gallery of Fluid Motion

The 28th Annual Gallery of Fluid Motion will be held as part of the Meeting. The Gallery consists of aesthetically pleasing and insightful posters or videos of fluid motion submitted by attendees. Both computational and experimental entries are encouraged. Poster and video entries must not duplicate one another. Outstanding posters, selected by a panel of referees, will be recognized during the meeting, will also be displayed at the Annual APS meeting in March, 2011, and will appear in the September 2011 issue of the Physics of Fluids. Please see the meeting website for information on how to submit Gallery of Fluid Motion entries.

Audiovisual Equipment

All rooms will be equipped with an LCD projector, screen, microphone, and pointer. Speakers must provide their own laptop computer to use with the projector. A Speaker Ready Room with technicians will be available to help attendees ensure that their presentations work smoothly with the LCD projection equipment.

Exhibitors

The Promenade Ballroom at the Convention Center will host staffed booths belonging to various vendors and exhibitors. Attendees are welcome to stop by, and interact with the exhibitors. Sponsorship opportunities are listed on the meeting website <http://www.dfd2010.caltech.edu/exhibits>. For more information on exhibits or sponsorship, please contact Professor Julian A. Domaradzki (jad@usc.edu) or Meetings and More (301 641-4150, mtgs911@aol.com).

Conference Reception

Always a highlight of the meeting, the Conference Reception will be held at the Aquarium of the Pacific on Sunday evening, November 21, 2010. The Aquarium is located

within a walking distance of the meeting hotels and has a mixture of indoor and outdoor areas with exhibits covering all areas of the Pacific, including sunny Southern California and Baja waters, the frigid waters of the North Pacific, and the colorful reefs of the Tropical Pacific.

The reception is included in the registration fee for those who register as APS Members, Nonmembers, Graduate Students, and Retired Members. Additional tickets may be purchased for \$75 each.

Accompanying Persons Program

If there is a sufficient interest, the organizers plan to offer a day trip for accompanying persons on Sunday, Nov. 21 to one of the many Southern California attractions. Among the possibilities is one of the Getty Trust museums, the Getty Center in Los Angeles or the Getty Villa in Malibu, <http://www.getty.edu>.

Meeting Host

The meeting is hosted by four local schools:
University of Southern California
California Institute of Technology
California State University Long Beach
University of California Los Angeles

Meeting Chair

Prof. Julian Andrzej Domaradzki
University of Southern California
jad@usc.edu

Meeting Information:

Contact Meetings and More
General Information (Monica Malouf)
Phone: (301) 526-8129

Exhibiting and Sponsorship Information (Peggy Holland)
Phone: (301) 641-4150
Fax: (240) 396-5900
Email: mtgs911@aol.com

2009 Conference Website

<http://dfd2010.org> or <http://www.dfd2010.caltech.edu>

Future APS/DFD Meetings

2011 Baltimore, MD

Prof. Andrea Prosperetti, Meeting Chair
Johns Hopkins University

2012 San Diego, CA

Prof. Juan Lasheras, Meeting Chair
University of California San Diego

Call for APS/DFD Officers and Executive Committee Candidates

The Nominating Committee of the APS Division of Fluid Dynamics invites suggestions for candidates for Vice-Chair, Councillor, and two Member-at-Large positions for the Executive Committee of the DFD. Please send the names of potential candidates to the Chair of the DFD Nominating Committee by June 20, 2010:

Fazle Hussain
Departments of Mechanical Engineering,
Physics, and Geosciences
University of Houston
4800 Calhoun Rd. Houston, TX 77204- 4006
(713) 743-4545
fhussain@uh.edu

Officers and Members-at-Large of the Executive Committee must be members of the Division for at least two years prior to nomination. The member elected as Vice-Chair shall serve in that office for one year, then for one year as Chair-Elect, then for one year as Chair of the Division and Executive Committee, and finally, one year as Past Chair. The Division Councillor serves for four years, and the Members-at-Large of the Executive Committee serve for three years. More information on these positions can be found at the governance section of the APS DFD website: <http://units.aps.org/units/dfd>.

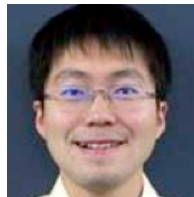
The Nominating Committee will select two nominees for each position.

APS/DFD 2009 Awards, Prizes, New Fellows, and Gallery Winners



2009 Fluid Dynamics Prize

Stephen B. Pope of Cornell University was the recipient of the 2009 Fluid Dynamics Prize that recognizes major contributions to fundamental fluid dynamics made during a career of outstanding work. The citation reads: *“For seminal contributions to the understanding and prediction of turbulent phenomena, especially the development of the PDF approach for turbulent flows.”*



2009 Andreas Acrivos Dissertation Award

Xiaoli Li, United Technologies Research Center, received the Andreas Acrivos Dissertation Award for his thesis entitled, *“Computational study of fluid particles: dynamics of drops, rheology of emulsions and mechanics of biological cells.”* The award recognizes an exceptional young scientist for original, outstanding doctoral thesis work in fluid dynamics done in the United States. Dr. Li did his doctoral thesis work at the University of Delaware under the direction of Prof. Kausik Sarkar.



2009 Francois Frenkiel Award

Aditya S. Khair and Todd M. Squires, University of California, Santa Barbara, were the recipients of the François Frenkiel Award, which recognizes significant contributions to fluid mechanics that have been published in the **Physics of Fluids** during the preceding year by young investigators. Their citation reads: *“For fundamental aspects of concentration polarization arising from nonuniform electrokinetic transport.”*



New APS/DFD Fellows

Each year the number of new Fellows is limited to be no more than 1/2 of 1% of the membership. The new 2009 Fellows are:



Roger E. A. Arndt University of Minnesota

For his seminal contributions to our understanding of cavitation including inception physics, erosion mechanisms, noise and vibration and effects on turbomachinery performance; and for his outstanding contributions to research and education in aeroacoustics, hydroacoustics and hydroturbine technology.



Carlo F. Barenghi Newcastle University

For the application of ideas and methods of modern fluid mechanics to quantum fluids, especially hydrodynamic stability, vortex dynamics and turbulence.



Tomas Bohr
The Danish Tech University

For insightful analyses of and experiments on nonlinear fluid dynamical problems, including turbulence, free-surface flows, granular dynamics, and biological flows.



James G. Brasseur
Penn State University

For advancements in knowledge of nonclassical interscale interactions in turbulence and in large-eddy simulation of the high Reynolds number boundary layer, and for interdisciplinary contributions to gastro-intestinal medicine by integrating physiology, mechanics, and mathematical modeling.



John W. M. Bush
Massachusetts Institute of Technology

For novel contributions to surface-tension dominated flows, elucidation of their appearance in biological contexts, and for many illustrations of the visual beauty of fluid dynamics.



Steven L. Ceccio
University of Michigan

For experimental advancements in multiphase and high-Reynolds number flows, including cavitating flows, gas-solid flows, and skin friction drag reduction using gas and polymer injection.



Jeffrey D. Crouch
The Boeing Company

For contributions to the theory, modeling and control of flow instabilities, including the discovery of new trailing-vortex instabilities and the advancement of practical methods for boundary-layer transition prediction and laminar flow control.



Jens G. Eggers
University of Bristol

For applications of the ideas of singularities to free-boundary problems such as jet breakup, drop formation, air entrainment, thin-film dynamics including wetting, dewetting and contact line motions, and with further applications to polymeric flows and models for granular dynamics.



Joseph Katz
Johns Hopkins University

For his important contributions to our understanding of the underlying physics of a wide range of complex flows, including turbulent boundary layers, cavitating flows in rotating machinery, and flows in ocean and atmospheric environments; for his numerous transformative contributions to experimental techniques; and for his years of editorial service.



Robert M. Kerr
University of Warwick

For his pioneering mix of 3D direct numerical simulations with analysis inspired by mathematics and physics to turbulent statistics, thermal convection, intense events and novel LES approaches. His 1993 Euler calculation has withstood the test of time and continues to inspire new mathematics.



J.O. Kessler
University of Arizona

For fundamental contributions to the biological fluid dynamics of swimming micro-organisms and for inspirational and enthusiastic leadership in the field.



Bamin Khomami
University of Tennessee

For his insightful application of novel numerical methods, molecular modeling, and experiments toward the physical understanding of elastic fluid flows including discovering and explaining novel aspects of their purely elastic and thermomechanical instability.



Paolo Luchini
Universita di Salerno

For the exploration of both electro-dynamics and fluid dynamics with an interdisciplinary command of mathematical and numerical approaches and a balanced attention to basic physical issues and practical applicability.



Mo Samimy
GDTL/AARL/OSU

For outstanding contributions to the physical understanding and control of high-speed and high Reynolds number free shear flows via developing and using novel control techniques and advanced laser based flow diagnostics.



Brian L. Sawford
Monash University

For outstanding and influential advances in the understanding and modeling of dispersion, mixing and acceleration in turbulent flows.



Fotis Sotiropoulos
University of Minnesota

For seminal contributions in vortex dynamics, flow-structure interactions, and chaotic dynamics in civil, mechanical and biomedical applications.

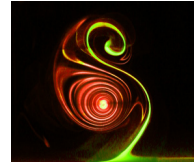


Timothy Wei
Rensselaer Polytechnic Institute

For development of high resolution flow measurements for turbulent flow studies of relevance to fundamental fluid mechanics, industrial applications, and medicine, and contributions to the fluid dynamics profession through outreach to government and the community.

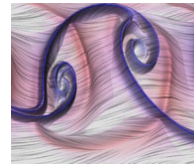
Winners of the 2009 Gallery of Fluid Motion

Posters*



A short wave instability caused by the approach of a vortex pair to a ground plane

Dan Harris, Victor Miller and Charles Williamson, *Cornell University*.



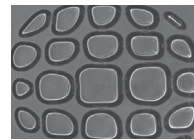
Lagrangian feature extraction of the cylinder wake

Jens Kasten, Christoph Petz, Ingrid Hotz and Hans-Christian Hege, *Zuse Institute Berlin, Germany*; Gilead Tadmor, *Northeastern University, USA*; Bernd R. Noack, *Berlin Institute of Technology, Germany*.



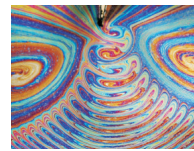
Oil droplet in alcohol

Roderick La Foy, *Virginia Tech*; Jesse Belden, Anna Shih and Alexandra H. Techet, *MIT*; Tadd T. Truscott, *NUWC*.



Bubble cluster explosion

P. A. Quinto-Su and C. D. Oh, *School of Physical and Mathematical Sciences, Nanyang Technological University*.



Japanese fan flow

Teis Schnipper, Anders Andersen, Tomas Bohr and Laust Tophøj, *Department of Physics and Center for Fluid Dynamics, Technical University of Denmark*.

*Winning entries are listed in alphabetical order and no ranking is implied.

(cont'd from previous page)

Videos*

Numerical simulation of a plunging breaking wave

Paul Adams, Kevin George, Mike Stephens, *UDAAC ERDC DSRC*; Douglas G. Dommermuth, Thomas T. O. Shea, Kyle A. Brucker, *SAIC*.

Electro-coalescence fireworks

Hamarz Aryafar, Pirouz Kavehpour, *UCLA*.

Spontaneously jumping of coalescing drops on a superhydrophobic surface

Jonathan Boreyko, Chuan-Hua Chen, *Duke University*.

Slow dynamics of phospholipid mono-layers

Siyong Q. Choi, Todd M. Squires, *Department of Chemical Engineering, University of California, Santa Barbara*.

Collapse of non-axisymmetric cavities

Oscar Enriquez, Ivo Peters, Stefan Gekle, Laura Schmidt, Michel Versluis, Devaraj van der Meer, Detlef Lohse, *Universiteit Twente*.

Large-eddy simulations of Richtmyer-Meshkov instability in a converging geometry

Manuel Lombardini, Ralf Deiterding, *Caltech-Aeronautics*.

Starting, travelling and colliding vortices: DBD plasma in quiescent air

Richard Whalley, Kwong-So Choi, *University of Nottingham*.

*Winning entries are listed in alphabetical order and no ranking is implied.

Highlights of the 62nd Annual DFD Meeting in Minneapolis



The 2009 DFD meeting was held in November at the Minneapolis Convention Center in Minneapolis, Minnesota. Highlights included three award lectures, eight invited lectures, and approximately 1600 additional contributed papers. A total of approximately 150 contributed sessions covered a wide range of topics in fluid dynamics. The Gallery of Fluid Motion featured 43 poster entries and 38 video entries. Total registration was 1903, 26% of which were international attendees from 36 countries. This included 63 undergraduates and 788 graduate students. The invited lectures were on topics ranging from cavitation inception to the fluid dynamics of volcanos and were given by Steven Ceccio (University of Michigan), Haecheon Choi (Seoul National University), Noel Clemens (University of Texas, Austin), Panayiotis Diplas (Virginia Tech), Michael Manga, (University of California, Berkeley), W. Kendall Melville (University of California, San Diego), Lance Munn (Harvard University), and Laurette Tuckerman (PMMH-ESPCI-CNRS, France). The 2009 Fluid Dynamics Prize winner, Stephen B. Pope delivered the Otto Laporte Lecture. The Andreas Acrivos Dissertation award lecture was given by Xiaoyi Li, and Aditya S. Khair and Todd M. Squires gave the Francois Frenkiel Award lecture. In addition, the meeting included four mini-symposia discussing topics such as fluid dynamics in sport and fluid motion inside cells, and two workshops on fluids education. Highlights from the winning poster and video entries will be published in a special Gallery of Fluid Motion article in the September 2010 issue of the **Physics of Fluids** and posted on the **Physics of Fluids** web site.

APS/DFD 2009-2010 Leadership & Contact Information

DFD members are invited to contact the DFD Leadership with suggestions and concerns.

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(12/11)

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(12/10)

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(12/10)

David Saintillan
(12/10)

Lance Collins
(12/10)

Juan Carlos del Alamo
(12/11)

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Sangtae Kim
Beverley McKeon
Michael Plesniak
Eckart Meiberg

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