



A Division of the American Physical Society



Atlanta skyline

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

**DFD2018 ATLANTA**  
 71<sup>st</sup> Annual Meeting of the American Physical Society  
 Division of Fluid Dynamics  
 November 18-20

### Atlanta, GA November 18-20, 2018

Close to 3,050 abstracts will be presented at the 71st Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD) in downtown Atlanta, GA. The meeting will take place November 18-20, 2018 at the Georgia

World Congress Center and is hosted by the Georgia Institute of Technology, Auburn University, Clemson University, Emory University, University of Alabama, University of Alabama in Huntsville, University of Georgia and Vanderbilt University.

#### Meeting Venue

Atlanta, Georgia's state capital since 1877, is steeped in the history of the Civil War and the civil rights movement. Today Atlanta is a vibrant, sophisticated, forward-looking city, a major airline hub, a sports center and a focal point for US corporate headquarters.

Located in the heart of downtown Atlanta, the Georgia World Congress Center Authority — which includes the 3.9 million-square-foot convention center, 21-acre Centennial Olympic Park, College Football Hall of Fame, Junior Achievement Discovery Center and state-of

-the-art Mercedes-Benz Stadium— is one of the top convention, sports and entertainment destinations in the world. The center connects to the CNN Center, CNN's world headquarters, and is in close proximity to the Georgia Aquarium, site of the APS-DFD 2018 reception, and walking distance to the World of Coca Cola, a museum tracing the history of Coke.

### Hotel Accommodations

Book your reservation NOW! Hotels are filling up quickly.

Discounted conference rates are available until October 14th or until the room blocks at the host hotels are sold out. A valid credit card is needed to guarantee your reservation. Reservations must be cancelled 72 hours prior to arrival to avoid a cancellation fee equal to one night room and tax (16.9% + \$5). We look forward to seeing you in Atlanta in November!

**You may make a reservation at any of the contracted hotels by going to our housing website:**

<https://book.passkey.com/e/49610416>

### Or by contacting:

APS-DFD Housing Bureau

Hours: Monday - Friday from 8:30am to 5:00pm PT

Toll Free: 1-877-226-1859

[apsdfd2018@apshousing.com](mailto:apsdfd2018@apshousing.com)

### 2018 APS DFD Hotel List - Currently Available!

#### Doubletree by Hilton - The American Hotel Atlanta Downtown (0.6 mile from Convention Center)

160 Ted Turner Drive NW, Atlanta, GA 30303

#### Rates (excluding 16.9% + \$5 Lodging Tax/fees):

\$139 per night + Tax for Single Room Occupancy

\$149 per night + Tax for Double Room Occupancy

\$159 per night + Tax for Triple Room Occupancy

\$169 per night + Tax for Quad Room Occupancy

Rates include complimentary high-speed internet.

#### Hilton Garden Inn Atlanta Downtown (0.5 mile from Convention Center)

275 Baker Street, Atlanta, GA 30313

#### Rates (excluding 16.9% + \$5 Lodging Tax/fees):

\$139 per night + Tax for Single Room Occupancy

\$149 per night + Tax for Double Room Occupancy

\$159 per night + Tax for Triple Room Occupancy

\$169 per night + Tax for Quad Room Occupancy

Rates include complimentary high-speed internet.

#### The Westin Peachtree Plaza (0.6 mile from Convention Center)

210 Peachtree Street NW, Atlanta, GA 30303

#### Rates (excluding 16.9% + \$5 Lodging Tax/fees):

\$140 per night + Tax for Single/Double Room Occupancy

\$160 per night + Tax for Triple/Quad Room Occupancy

Rates include complimentary high-speed internet.

### Registration

Registration is OPEN!

**Please visit the meeting website to register for the 2018 APS-DFD Meeting:**

<https://www.apsdfd2018.org/registration>

Please note that all international registrants will automatically receive a "Letter of Invitation" when they register for the meeting.

Registration Type	Received between 9/17 - 10/21	Received between 10/22 - 11/20
Member	\$555	\$735
Reciprocal Society Member	\$555	\$735
Non-Member	\$800	\$880
Retired Member (with APS Senior Membership)	\$295	\$380
Graduate Student Member**	\$285	\$375
Undergraduate**	\$110	\$155
Additional Reception Ticket	\$100	\$100

*\*\*Graduate/Undergraduate Students who are not APS Members must pay the nonmember rate unless joining at the time of registration. First year membership is free for first time students and includes (2) free Divisions or Topical Groups for all students. Undergraduate registrations do not include a ticket to the Sunday night reception. Reception tickets may be purchased for \$100.*

In addition, when you register for the meeting or submit your abstract, if you are not now a member of the Division of Fluid Dynamics, please consider signing up. It is only a \$10 per year additional cost to the APS membership fee. DFD membership allows you to receive more targeted DFD communications and enables DFD to better represent the interests and views of fluid dynamics within the broader APS structure.

For more information go to:

<https://www.aps.org/memb-sec/join/startpage.cfm>

### Key Dates

#### Registration Deadlines

#### Regular Registration Rate

Sept 17 – Oct 21, 2018

#### On-Site Registration Rate

Oct 22 – Nov 20, 2018

#### Cancellation Deadline

(no registration refunds past this date)

Nov 7, 2018

#### Hotel Reduced Rate Ends

Oct 14, 2018 or earlier if block sells out

#### Gallery of Fluid Motion (GFM)

#### GFM Posters

Please bring your poster to the meeting

#### GFM Videos

Upload deadline is passed

### Awards Program

Each year the APS Division of Fluid Dynamics presents the Fluid Dynamics Prize, the Stanley Corrsin Award, the François N. Frenkiel Award, and the Andreas Acrivos Dissertation Award. The 2018 award winners are listed below and each awardee will give a lecture at the meeting.

#### 2018 Fluid Dynamics Prize Recipient

Keith Moffatt, University of Cambridge  
*Singularities in Fluid Dynamics*

The citation reads, “For profound, elegant, and lasting contributions to fluid mechanics, including turbulence, Stokes flows, topological fluid mechanics, interfacial flows, and self-similarity.”

#### 2018 Stanley Corrsin Award Recipient

Anette "Peko" Hosoi, Massachusetts Institute of Technology  
*Hairy Hydrodynamics*

The citation reads: “For creative analysis of locomotion, contributions to the development of soft robotics as an emerging field, and her ability to combine mathematical analysis with physical insight.”

#### 2018 François N. Frenkiel Award Recipients

Alberto Villois, University of Bath, Giorgio Krstulovic, Université Côte d'Azur, and Davide Proment, University of East Anglia

Award for the paper titled: Universal and Nonuniversal Aspects of Vortex Reconnections in Superfluids, *Phys. Rev. Fluids* **2**, 044701 (2017).

#### 2018 Andreas Acrivos Dissertation Award Recipient

Shabnam Raayai, Massachusetts Institute of Technology

Award for the Massachusetts Institute of Technology doctoral thesis titled: Geometry Mediated Drag Reduction Using Riblets and Streamwise Surface Textures

### Invited Lectures

Eight invited lectures on topics of broad interest to the DFD community will be given by experts in each field.

#### Sunday, November 18

Joseph James Niemela, International Center for Theoretical Physics, Trieste, Italy  
*Revisiting Turbulent Convection*

Itai Cohen, Cornell University

*Flight of the Fruit Fly*

#### Monday, November 19

Dennice F. Gayme, Johns Hopkins University  
*Towards Control Oriented Models of Wall-bounded Turbulence*

Sandra Troian, California Institute of Technology  
*MicroAngelo Technique: 3D Sculpting of Nanofilms by Spatiotemporal Modulation of Thermocapillary Forces*

Ana M. Mancho, Instituto de Ciencias Matemáticas. Consejo Superior de Investigaciones Científicas  
*Revealing Lagrangian Pathways for Transport in a Turbulent Ocean*

Roberto Zenit, Universidad Nacional Autónoma de México  
*Fluid Mechanics of Modern Artistic Painting*

#### Tuesday, November 20

Marcus Hultmark, Princeton University  
*Wind Energy: The Pressure is On*

Roseanna Zia, Stanford University  
*The Hydrodynamics of Intracellular Macromolecular Motion*

### Minisymposia

The 71st Annual Meeting will feature 2 minisymposia. Minisymposium presentations are 26 minutes.

#### Monday, November 19

- **Introduction to Topics in Fluid Dynamics**
- **Prediction of Highly Turbulent Premixed Combustion in LES Framework**

### Focus Sessions

This year's program includes 10 Focus Sessions. Each presentation is 13 minutes.

#### Sunday, November 18

- **The Physics of Microscale Fluid Structure Interactions: Fully Coupled Flow and Deformation Mechanics I**
- **Hydrodynamics of Particles and Macromolecules at Fluid Interfaces I**
- **Fluid Dynamics of Atmospheric and Oceanic Extreme Events**
- **The Physics of Microscale Fluid Structure Interactions: Fully Coupled Flow and Deformation Mechanics II**
- **Hydrodynamics of Particles and Macromolecules at Fluid Interfaces II**
- **Supericephobic Surfaces**
- **Flow Past Passive Hairy Surfaces**
- **From Single Swimmers to Swarms: Active Matter in Fluids at Intermediate Reynolds Numbers**

#### Monday, November 19

- **Complex Fluid Flows Through Porous Media I**
- **Complex Fluid Flows Through Porous Media II**

### Posters

The number of poster research contributions to the Annual DFD Meeting has been growing over the past few years with over 141 technical posters submitted this year and 34 Student Posters enrolled in the Student Poster Competition.

Student posters will be judged and awarded 1st and 2nd Prize for "Best Poster" in the following categories: Category 1: Computational fluid dynamics, Category 2: Experimental fluid dynamics

First and second place winners in each category will receive cash awards and certificates. Awardees will also be highlighted in the DFD Newsletter.

While the Technical Session of the DFD Meeting is open to all participants, the Poster Competition will constitute a specific opportunity for graduate and undergraduate students to enhance their presentation skills and to build their professional network.

### Gallery of Fluid Motion

The 36th Annual Gallery of Fluid Motion will be held as part of the meeting. The Gallery consists of posters or videos submitted by attendees illustrating the science - and very often also the beauty - of fluid motion. Both computational and experimental entries are encouraged.

A panel will select outstanding poster and video entries based on artistic value, scientific content, and originality. The winning entries will be published as a special supplement to *Physical Review Fluids*. The top three winners in each category will be presented the Milton van Dyke Award consisting of a small monetary prize; a copy of the Album of Fluid Motion; and an award certificate. All posters and videos will be accessible on-line at <http://gfm.aps.org>.

### 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.

**All meeting room projectors will have 1920x1200 resolution. Please set your laptop resolutions to 1920x1200 (16:10 format). Your images will not display properly if your laptop resolution is higher than the projector's.**

A Speaker Ready Room with technicians will be available to help attendees ensure that their presentations work smoothly with the LCD projection equipment. We suggest all presenters visit the Speaker Ready Room in advance of their presentation.

### Exhibitor and Sponsorship Opportunities

Exhibits will be centrally located on Level 1 of the Georgia World Congress Center in Exhibit Hall B2.

For more information on exhibits or sponsorship, please email Margaret McDonald at:

[margaret2@meetingsandmore.net](mailto:margaret2@meetingsandmore.net)

### Conference Reception

This year's Reception will be at the world-renowned Georgia Aquarium, within walking distance of the GWCC and the hotels. This aquarium is home to more animals than any other on Earth and contains more than 38 million liters of water! It is the largest aquarium in the US, containing six exhibit areas which will be open for the evening. Come view the whale sharks, sea otters, beluga whales, an octopus, puffins, and numerous other marine animals. Docents will be available to answer questions and there will be plenty of room for sitting, talking, and enjoying the sights. **Please plan to drop your backpack at your hotel and enjoy a wonderful evening.**

The reception is included in the registration fee for those who register as APS Members, Nonmembers, Graduate Students, and Retired Members. Undergraduate students and guests may purchase tickets for \$100.

### Other Events

Please visit the meeting website at <http://www.apsdfd2018.org/events-1> for details on other events taking place over the meeting dates. Note, many of these events are full at this time, however those who are not able to secure tickets can go to the event and check on availability due to cancellations or no-shows.

#### Saturday, November 17

- Professional Skills Development Workshop for Women Physicists
- Advice on Applying to Faculty and Postdoctoral Positions

#### Sunday, November 18

- Young Investigator Workshop
- Fluids Education Lunch
- All the Faces of Fluids
- APS-DFD Conference Reception

#### Monday, November 19

- Women in Fluids Networking Lunch
- Student Lunch
- Meet the APS *Physical Review* Journal Editors' Reception

#### Tuesday, November 20

- Lunch for Underrepresented Minority Researchers

### Meeting Co-Chairs

#### P.K. Yeung

Georgia Institute of Technology  
[pk.yeung@ae.gatech.edu](mailto:pk.yeung@ae.gatech.edu)

#### Donald Webster

Georgia Institute of Technology  
[dwebster@ce.gatech.edu](mailto:dwebster@ce.gatech.edu)

### Abstract Submissions

#### Eric Barth

Scientific Program Coordinator  
 American Physical Society  
 Phone: (301) 209-3285  
[barth@aps.org](mailto:barth@aps.org)

### Registration

#### Kristi Despain Woolston

Orchid Events  
 Phone: (801) 505-4108  
[kristi@orchideventsolutions.com](mailto:kristi@orchideventsolutions.com)

### Exhibitor Information and Website Updates

#### Margaret McDonald

Meetings and More  
 Phone: (240) 355-5608  
[margaret2@meetingsandmore.net](mailto:margaret2@meetingsandmore.net)

### Housing and Special Events Monica Malouf

#### Monica Malouf

Meetings and More  
 Phone: (301) 526-8129  
[monica@meetingsandmore.net](mailto:monica@meetingsandmore.net)

### General Meeting Questions

#### Peggy Holland

Meetings and More  
 Phone: (301) 641-4150  
[peggy@meetingsandmore.net](mailto:peggy@meetingsandmore.net)

### Future APS/DFD Meetings

#### 2019: Seattle, WA

Alberto Aliseda, Meeting Co-Chair  
 Dana Dabiri, Meeting Co-Chair  
 University of Washington

#### 2020: Chicago, IL

Jonathan Freund, Meeting Chair  
 University of Illinois Urbana-Champaign

#### 2021: Phoenix, AZ

Marcus Hermann, Meeting Chair  
 Arizona State University

#### 2022: Indianapolis, IN

Luciano Castillo, Meeting Chair  
 Purdue University

#### 2023: Washington, DC

Kenneth Kiger, Meeting Co-Chair  
 University of Maryland

Michael Plesniak, Meeting Co-Chair  
 George Washington University

## Newly Elected Executive Committee Members

The following are the newly elected members of the DFD Executive Committee. Their terms will begin immediately after the close of the 2018 APS DFD meeting.



**Vice Chair**  
Shelly Anna,  
Carnegie Mellon  
University



**Secretary/Treasurer**  
Jeffrey Morris,  
CUNY City College of  
New York



**Councillor**  
Howard Stone,  
Princeton University



**Member at Large**  
Petia Vlahovska,  
Northwestern University



**Member at Large**  
Emilie Dressaire,  
CNRS, France/ Univer-  
sity of California, Santa  
Barbara

# APS/DFD 2017-2018 Leadership & Contact Information

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

## EXECUTIVE COMMITTEE

**Chair:**  
**Eckart Meiburg**  
(11/17 - 10/18)  
*Univ of California - Santa Barbara*

**Chair-Elect:**  
**Charles Meneveau**  
(11/17 - 10/18)  
*Johns Hopkins Univ*

**Vice-Chair:**  
**Minami Yoda**  
(11/17 - 10/18)  
*Georgia Inst of Tech*

**Past Chair:**  
**Robert Moser**  
(11/16 - 10/17)  
*Univ of Texas, Austin*

**Councillor:**  
**Ann Karagozian**  
(01/15 - 12/18)  
*Univ of California - Los Angeles*

**Secretary/Treasurer:**  
**Jonathan Freund**  
(11/15 - 10/18)  
*Univ of Illinois - Urbana*

**Member-at-Large:**  
**Anette Hosoi**  
(11/15 - 10/18)  
*MIT*

**Member-at-Large:**  
**Detlef Lohse**  
(11/15 - 10/18)  
*Univ of Twente*

**Member-at-Large:**  
**Jeff Eldredge**  
(11/16 - 10/19)  
*Univ of California - Los Angeles*

**Member-at-Large:**  
**Katherine Prestridge**  
(11/16 - 10/19)  
*Los Alamos Natl Lab*

**Member-at-Large:**  
**David Saintillan**  
(11/17 - 10/20)  
*Univ of California - San Diego*

**Member-at-Large:**  
**Sarah Waters**  
(11/17 - 10/20)  
*University of Oxford*

## COMMITTEES

**NOMINATING COMMITTEE**  
8 MEMBERS, STAGGERED  
2-YEAR TERMS

**Bud Homsy**  
(12/18)  
Chair

**Elisabeth Guazzelli**  
(12/19)  
Vice-Chair

**Serafim Kalliadasis**  
(12/18)

**Haecheon Choi**  
(12/18)

**Alison Marsden**  
(12/18)

**Paolo Luzzatto-Fegiz**  
(12/19)

**Anne Juel**  
(12/19)

**Anne De Wit**  
(12/19)

**PROGRAM COMMITTEE**  
8 MEMBERS, STAGGERED  
3-YEAR TERMS

**Charles Meneveau**  
(12/18)  
Chair

**Minami Yoda**  
(12/18)  
Vice-Chair

**Shawn Shadden**  
(12/18)

**Michael Plesniak**  
(12/18)

**Nicholas Hutchins**  
(12/18)

**Rui Ni**  
(12/20)

**Dennice Gayme**  
(12/20)

**Jean Hertzberg**  
(12/20)

**FELLOWSHIP COMMITTEE**  
8 FELLOWS, STAGGERED  
2-YEAR TERMS

**Minami Yoda**  
(12/18)  
Chair

**Charles Meneveau**  
(12/18)  
Vice-Chair

**Yoshi Kimura**  
(12/18)

**Ken Christensen**  
(12/18)

**Ching-Long Lin**  
(12/18)

**Beverley McKeon**  
(12/19)

**Peko Hosoi**  
(12/19)

**John Dabiri**  
(12/19)

**EXTERNAL AFFAIRS COMMITTEE**  
8 MEMBERS, STAGGERED  
3-YEAR TERMS

**Melissa Green**  
(12/18)  
Chair

**Stephen Morris**  
(12/19)  
Vice-Chair

**Mihailo Jovanovic**  
(12/18)

**Roberto Zenit**  
(12/18)

**Kausik Sarkar**  
(12/18)

**Meredith Metzger**  
(12/19)

**Arvind Santhanakrishnan**  
(12/20)

**Hassan Masoud**  
(12/20)

**Devesh Ranjan**  
(12/20)

**FLUID DYNAMICS PRIZE SELECTION COMMITTEE**  
8 MEMBERS, STAGGERED  
2-YEAR TERMS

**Satish Kumar**  
(12/19)  
Chair

**Detlef Lohse**  
(12/19)  
Vice-Chair

**Yukio Kaneda**  
(12/18)

**Sascha Hilgenfeldt**  
(12/18)

**Alexander Smits**  
(12/18)

**Kathleen Stebe**  
(12/18)

**Rama Govindarajan**  
(12/19)

**Alban Sauret**  
(12/19)

**CORSIN AWARD SELECTION COMMITTEE**  
8 MEMBERS, STAGGERED  
2-YEAR TERMS

**S. Balachandar**  
(12/18)  
Chair

**Karen Daniels**  
(12/19)  
Vice-Chair

**Randy Ewoldt**  
(12/18)

**Rajat Mittal**  
(12/18)

**Sungyon Lee**  
(12/19)

**Eva Kanso**  
(12/19)

**Amir Riaz**  
(12/19)

**Jens Eggers**  
2017 Award Winner

**ACRIVOS AWARD SELECTION COMMITTEE**  
7 MEMBERS, STAGGERED  
2-YEAR TERMS

**Mark Stremler**  
(12/18)  
Chair

**Arezoo Ardekani**  
(12/19)  
Vice Chair

**Mingjun Wei**  
(12/18)

**Nicholas Ouellette**  
(12/18)

**Carlos Hidrovo**  
(12/18)

**Pascale Garaud**  
(12/19)

**Alain Pumir**  
(12/19)

**FRENKIEL AWARD SELECTION COMMITTEE**  
7 MEMBERS, STAGGERED  
2-YEAR TERMS

**Joanna Austin**  
(12/18)  
Chair

**Nathalie Vriend**  
(12/19)  
Vice-Chair

**Carlos Pantano**  
(12/18)

**Peter Schmid**  
(12/18)

**Christine Gilbert**  
(12/19)

**Jeff Eldredge**  
(12/19)  
Phys. Rev. Fluids liaison

**Jean-Baptiste Salmon**  
2017 Award Winner

**COMMITTEE ON MEDIA & SCIENCE RELATIONS**  
6 MEMBERS, STAGGERED  
2-YEAR TERMS

**Nicole Sharp**  
(12/18)  
Chair

**Roseanna Zia**  
(12/19)  
Vice-Chair

**Juan Carlos del Alamo**  
(12/18)

**Pavlos Vlachos**  
(12/18)

**Luciano Castillo**  
(12/18)

**Azar Eslam-Panah**  
(12/19)

**COMMITTEE ON EDUCATIONAL & CAREER OUTREACH**  
6 MEMBERS, STAGGERED  
2-YEAR TERMS

**Laura Miller**  
(12/18)  
Chair

**Kathy Prestridge**  
(12/19)  
Vice-Chair

**Maciej Balajewicz**  
(12/18)

**Emilie Dressaire**  
(12/19)

**Pratap Vanka**  
(12/19)

**Jesse Capecelatro**  
(12/19)

**DIVISION WEBSITE DEVELOPMENT OFFICER**

**Jeff Eldredge**

**GALLERY OF FLUID MOTION COORDINATOR**

**Kenneth Kiger**

**2015-2019**

**Beverley McKeon**  
APS representative on US National Committee for Theoretical and Applied Mechanics