

A Division of the American Physical Society



Portland Waterfront

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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.



### Portland, OR November 20-22, 2016

Over 2700 abstracts will be presented at the 69th Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD) meeting in Portland, OR on November 20-22, 2016. The meeting is being hosted by Portland State University, University of Washington and Oregon State University. The meeting will be held at the Oregon Convention Center in Portland, Oregon.

### Portland and the Oregon Convention Center

Portland, Oregon's largest city, sits on the Columbia and Willamette rivers, in the shadow of snow-capped Mount Hood. It is known for its parks, bridges and bicycle paths, as well as for its eco-friendliness, microbreweries and coffeehouses. Iconic Washington Park encompasses sites from the formal Japanese Garden to Oregon Zoo and its railway. The city hosts thriving art, theater and music scenes. For more information on Portland go to: <http://www.travelportland.com/>

The Oregon Convention Center (OCC) is the largest convention center in the Pacific Northwest, making it an ideal venue for conventions, industry tradeshows, meetings and banquets.

### Hotel Accommodations

Book your reservation NOW! Hotels are filling up quickly. Discounted conference rates are

still available at the Hilton Portland & Executive Tower in downtown Portland through October 24, 2016.

### Hilton Portland & Executive Tower

921 SW Sixth Avenue  
Portland, OR 97204

The Hilton Portland & Executive Tower is in the heart of downtown Portland, approximately 1.7 miles from the Oregon Convention Center and easily accessible using the MAX Light Rail. Two complimentary MAX rail passes will be given per room for those staying at the hotel.

#### Rates:

\$159 + Tax: Single/Double Occupancy Room

\$175 + Tax: Triple/Quad Occupancy Room

You may make a reservation by going to our reservation website: <https://aws.passkey.com/event/14720490/owner/3232/home>

Or by contacting:

### Travel Portland Housing Department

Hours: Monday – Friday from 8:30 am to 5:00 pm PST

Phone: 1-503-275-9295

Toll Free: 1-877-678-5263 x2

Email: [housing@travelportland.com](mailto:housing@travelportland.com)

### Registration

Registration is now open!

[http://apsdfd2016pdx.org/?page\\_id=32](http://apsdfd2016pdx.org/?page_id=32)

Registration Type	Received between 9/16 - 10/22	Received between 10/23 - 11/22
Member	\$540	\$720
Reciprocal Society Member	\$540	\$720
Non-Member	\$785	\$865
Retired Member (with APS Senior Membership)	\$280	\$360
Graduate Student Member**	\$275	\$360
Undergraduate***	\$100	\$140
Additional Reception Ticket	\$100	\$100

\*\*Graduate Students who are not APS Members must pay the nonmember rate unless joining at the time of registration. 1st year is free for first time members in the U.S., Canada, or Mexico. 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.

### Key Dates

#### Registration Deadlines

#### Regular Registration Rate

Sept 17 – Oct 22, 2016

#### On-Site Registration Rate

Oct 23 – Nov 24, 2016

#### Cancellation Deadline

(no registration refunds past this date)

Nov 7, 2016

#### Hotel Reduced Rate Ends

Oct 24, 2016 or earlier if block sells out

### Gallery of Fluid Motion (GFM)

**GFM Poster and Video Submission: PAST**

**Video Submission Deadline: PAST**

**GFM Poster - Bring to meeting**

### Awards Program

Each year the APS Division of Fluid Dynamics presents the Fluid Dynamics Prize, the Francois N. Frenkiel Award, the Andreas Acrivos Dissertation Award and the Stanley Corrsin Award. The 2016 award winners are listed below and each awardee will give a lecture at the meeting.

#### 2016 Fluid Dynamics Prize Recipient

Howard A. Stone, Princeton University  
*Seeking Simplicity in the Flows of Complex Fluids*

The citation reads, "For seminal contributions to our understanding of low Reynolds number flows, microfluidics, interfacial phenomena and biological fluid dynamics, and for his inspirational contributions to teaching and communicating the beauty and power of Fluid Mechanics in Physics and Engineering."

#### 2016 Stanley Corrsin Award Recipient

Ivan Marusic, University of Melbourne  
*High Reynolds Number Wall Turbulence*

The citation reads, "For his seminal contributions to the understanding of turbulent wall-bounded flows through laboratory and atmospheric studies of long meandering structures, models of their effect on the wall stress, and extensions of the attached eddy hypothesis."

**2016 François N. Frenkiel Award Recipient**

Alexei Poludnenko, Texas A&M University  
*High-Speed Turbulent Reacting Flows: Intrinsic Flame Instability and its Effects on the Turbulent Cascade*

For the paper titled: Pulsating Instability and Self-Acceleration of Fast Turbulent Flames Physics of Fluids Volume 27, 014016 (2015)

**2016 Andreas Acrivos Dissertation Award Recipient**

Daniel Quinn, Stanford University  
*How Flexibility and Dynamic Ground Effect Could Improve Bio-inspired Propulsion*

**Invited Lectures**

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

Ho-Young Kim, Seoul National University  
*Jumping on Water*

Michel Stanislas, Ecole Centrale de Lille  
*Near Wall Turbulence: An Experimental View*

Kathleen Stebe, University of Pennsylvania  
*Colloids at Curved Fluid Interfaces*

Mark Glauser, Syracuse University  
*Turbulent Flow Physics and Noise in High Reynolds Number Compressible Jets*

Arezoo Ardekani, Purdue University  
*Settling and Swimming in Density Stratified Fluids*

Philippe Claudin, École Supérieure de Physique et Chimie Industrielles  
*An Explanation for the Bedforms on Comet 67P/Churyumov-Gerasimenko*

David Hu, Georgia Institute of Technology  
*Ants, Eyelashes, and the 2015 Ig Nobel Prize in Physics*

**Minisymposia**

The 2016 annual meeting will feature the following 5 minisymposia covering 2 topic areas. Each presentation is 26 minutes in duration.

**Geophysical Turbulence Induced by Flow over Topography I**

**Geophysical Turbulence Induced by Flow over Topography II**

**Geophysical Turbulence Induced by Flow over Topography III**

**Multiphase Flows in Biomedicine I**

**Multiphase Flows in Biomedicine II**

**Focus Sessions**

This year's program includes three Focus Sessions on two topics. Each presentation is 13 minutes.

**Instabilities at Soft Interfaces I**

**Instabilities at Soft Interfaces II**

**Disgust: The Fluid Dynamics of the Gross**

**Posters**

The number of poster research contributions to the Annual DFD Meeting has been growing over the past few years with over 127 posters submitted this year of which 19 are entered into a 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 and Category 3: Microfluidics and interfacial 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 Poster 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 34th 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. 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 in Hall A of the Convention Center.

For more information on exhibits or sponsorship, please email Margaret McDonald at:  
[margaret2@meetingsandmore.net](mailto:margaret2@meetingsandmore.net)

### Conference Reception

This year the DFD Conference Reception will be held at the Oregon Convention Center. This is always a great way to catch up with others in the field and make new connections. There will be local Portland entertainment at the event which will surely captivate those that attend.

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.

### Meeting Chair

**Raúl Bayoán Cal**  
 Portland State University  
 Phone: (518) 421-8899  
[rcal@pdx.edu](mailto:rcal@pdx.edu)

### Abstract Submissions

**Donald Mewha**  
 APS  
 (301) 209-3285  
[mewha@aps.org](mailto:mewha@aps.org)

### Meeting Information General Information

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

### Monica Malouf

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

### Registration

**Kathy Smith**  
 Orchid Event Solutions  
 Phone: (801) 505-4104  
[katie@orchideventsolutions.com](mailto:katie@orchideventsolutions.com)

### Exhibiting and Sponsorship Information

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

### Future APS/DFD Meetings

#### 2017: Denver, CO

Professor Jean Hertzberg, Meeting Chair  
 Professor Peter Hamlington, Meeting Co-Chair  
 University of Colorado, Boulder

#### 2018: Atlanta, GA

Professor P.K. Yeung, Meeting Chair  
 Professor Donald Webster, Co-Chair  
 Georgia Institute of Technology

#### 2019: Seattle, WA

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

#### 2020: Chicago, IL

Professor Jon Freund, Meeting Chair  
 University of Illinois Urbana-Champaign

## 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 2016 APS DFD meeting.



**Vice-Chair**  
 Eckart Meiburg,  
 University of California,  
 Santa Barbara



**Member at Large**  
 Jeff Eldredge,  
 University of California,  
 Los Angeles



**Member at Large**  
 Kathy Prestridge,  
 Los Alamos National  
 Laboratory

# APS/DFD 2015-2016 Leadership

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

## EXECUTIVE COMMITTEE

### Chair:

**Ellen Longmire**  
(11/15 - 10/16)

*Univ of Minn - Minneapolis*

### Chair-Elect:

**Lance Collins**  
(11/15 - 10/16)

*Cornell Univ*

### Vice Chair:

**Robert Moser**  
(11/15 - 10/16)

*Univ of Texas, Austin*

### Past Chair:

**James Duncan**  
(11/15 - 10/16)

*Univ of Maryland-College Park*

### 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:

**Paul Linden**  
(11/13 - 10/16)

*Univ of Cambridge*

### Member-at-Large:

**Shelley Anna**  
(01/15 - 12/17)

*Carnegie Mellon Univ*

### Member-at-Large:

**John Dabiri**  
(01/15 - 12/17)

*Stanford*

### Member-at-Large:

**Anette Hosoi**  
(11/15 - 10/18)

*MIT*

### Member-at-Large:

**Detlef Lohse**  
(11/15 - 10/18)

*Univ of Twente*

## COMMITTEES

### NOMINATING COMMITTEE

8 MEMBERS, STAGGERED  
2-YEAR TERMS

**Michael Schultz**  
(12/16)

Chair

**Kathy Prestridge**  
(12/17)

Vice-Chair

**David Hu**  
(12/17)

**David Saintilan**  
(12/17)

**Daniel Bodony**  
(12/17)

**Peter Schmid**  
(12/16)

**Yukio Kaneda**  
(12/16)

**Alison Marsden**  
(12/16)

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

**Lance Collins**  
Chair

**Robert Moser**  
Vice-Chair

**Shawn Shadden**  
(12/18)

**Michael Plesniak**  
(12/18)

**Nicholas Hutchins**  
(12/18)

**Patrice Le Gal**  
(12/17)

**Petia Vlahovska**  
(12/17)

**Roseanna Zia**  
(12/17)

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

**Robert Moser**  
Chair

**Lance Collins**  
Vice-Chair

**Ross Griffiths**  
(12/17)

**Z. Jane Wang**  
(12/17)

**Minami Yoda**  
(12/17)

**Arne Pearlstein**  
(12/16)

**Jim Wallace**  
(12/16)

**Serafim Kalliadasis**  
(12/16)

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

**Ken Christensen**  
(2016)  
Chair

**Mihailo Jovanovic**  
(12/17)  
Vice-Chair

**Roberto Zenit**  
(12/18)

**Melissa Green**  
(12/18)

**Beverley McKeon**  
(12/16)

**Kausik Sarkar**  
(12/18)

**Anya Jones**  
(12/17)

**Mihailo Jovanovic**  
(12/17)

**Jens Fransson**  
(12/17)

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

**Kenny Breuer**  
(12/16)  
Chair

**Krishnan Mahesh**  
(12/17)  
Vice-Chair

**Michael Brenner**  
(12/17)

**Anne de Wit**  
(12/17)

**Ron Adrian**  
(12/16)

**Shelley Anna**  
(12/16)

**Harindra "Joe" Fernando**  
(12/16)

**Mory Gharib**  
2015 Award Winner

### CORRSIN AWARD SELECTION COMMITTEE 8 MEMBERS, STAGGERED 2-YEAR TERMS

**Ugo Piomelli**  
(12/16)  
Chair

**Karen Flack**  
Vice-Chair  
(12/17)

**Grae Worster**  
(12/17)

**Stephen Pope**  
(12/17)

**Eckart Meiburg**  
(12/17)

**Michael Graham**  
2015 Award Winner

**Kate Stebe**  
(12/16)

**Gary Leal**  
(12/16)

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

**Ching-Long Lin**  
(12/16)  
Chair

**Satish Kumar**  
(12/17)  
Vice Chair

**Dennice Gayme**  
(12/17)

**Antonino Ferrante**  
(12/17)

**Robert Martinuzzi**  
(12/17)

**Eva Kanso**  
(12/16)

**John Dabiri**  
(12/16)

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

**Emmanuel Villermaux**  
(12/16)  
Chair

**Joe Klewicki**  
(12/17)  
Vice-Chair

**Donald Webster**  
(12/17)

**Emily Ching**  
(12/17)

**Rama Govindarajan**  
(12/16)

**Jonathan Freund**  
(12/16)

**Eric Lauga**  
2015 Award Winner

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

**Andrew Belmonte**  
(12/17)  
Chair

**Tadd Truscott**  
(12/16)

Vice-Chair

**Phil Marcus**  
(12/16)

**Nicole Sharp**  
(12/16)

**Pavlos Vlachos**  
(12/18)

**Luciano Castillo**  
(12/18)

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

**Carlos Hidrovo**  
(12/16)  
Chair

**Aline Cotel**  
(12/17)  
Vice-Chair

**Ebenezer Gnanamanickam**  
(12/17)

**Mitul Luhar**  
(12/17)

**Nathalie Vriend**  
(12/17)

**Shuhuai Yao**  
(12/16)

### DIVISION WEBSITE DEVELOPMENT OFFICER

**Jeff Eldredge**

### GALLERY OF FLUID MOTION COORDINATOR

**Ken Kiger**

### APS REPRESENTATIVE ON US NATIONAL COMMITTEE FOR THEORETICAL AND APPLIED MECHANICS

**Beverley McKeon**  
2015-2019