



A Division of the American Physical Society

## THE 67TH ANNUAL DFD MEETING

### San Francisco, California November 23–25, 2014



San Francisco Skyline from the Golden Gate Bridge

#### San Francisco, CA November 23-25, 2014

The 67th Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD) will be held in San Francisco, California from November 23rd to 25th, 2014. The meeting is hosted by Stanford University, UC Berkeley and Santa Clara University. NASA Ames Research Center, Lawrence Livermore National Laboratory, Sandia National Laboratories and Lawrence Berkeley National Laboratory are also helping with the meeting organization. The meeting will be held at the Moscone West Center.

#### Meeting Venue

The Moscone Center is the largest convention and exhibition complex in San Francisco, California. It is comprised of three main halls of which the Moscone West will house the APS/DFD 2014 meeting.

Located conveniently in the South of Market area, the center provides easy access to downtown San Francisco's many restaurants, as well as major transportation systems such as the BART and Muni Metro.

The Center is within walking distance to hotels that have been carefully selected for this meeting offering attractive rates to attendees.

#### San Francisco

San Francisco is often called "Everybody's Favorite City," a title earned by its scenic beauty, cultural attractions, diverse communities, and world-class cuisine. Measuring 49 square miles, this very walkable city is dotted with landmarks like the Golden Gate Bridge, cable cars, Alcatraz and the largest Chinatown in the United States. A stroll of the City's streets can lead from Union Square to North Beach to Fisherman's Wharf, with intriguing neighborhoods to explore at every turn. Views of the Pacific Ocean and San

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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.

Francisco Bay are often laced with fog, creating a romantic mood in this most European of American cities.

For more information on this city, please visit:  
<http://www.sanfrancisco.travel/>

### Housing and Meeting Registration

Registration for the meeting and housing information is available through the meeting web site:  
<http://apsdfd2014.stanford.edu>

APS/DFD has negotiated discounted hotel rates for meeting attendees next to the convention center. You should make your hotel reservation after completing your on-line registration for the meeting or by going to the hotel section of the website (located under the information tab) and clicking on the link provided. Hotel reservations are taken on a first-come space-available basis. Submit your request as soon as possible for the best opportunity of receiving your hotel choice.

### Registration

To register go to: <http://apsdfd2014.stanford.edu> and click on the REGISTRATION LINK found on the home page.

2014 Rates	Early (thru 9/15)	Regular (9/16–10/22)	Late & On-Site (10/23–11/25)
Full Member	\$440	\$510	\$690
Reciprocal Society Member	\$440	\$510	\$690
Non-Member	\$695	\$755	\$835
Retired (with APS Senior Membership)	\$235	\$255	\$340
Graduate Student	\$235	\$255	\$340
Undergraduate Student	\$85	\$85	\$120
Reception Ticket	\$100	\$100	\$100

### Key Dates

#### Registration Deadlines

**Regular Registration Rate**  
 PASSED

### On-Site Registration Rate

Oct 23rd – Nov 25th 2014

*Please note, you will still be able to register on-line until Friday, Nov 20, however after Oct. 22th it will be at the on-site rate.*

### Cancellation Deadline

(no registration refunds past this date):  
 Nov 8th 2014

### Hotels

#### Limited Rooms Still Available

Check meeting website

### Gallery of Fluid Motion (GFM)

#### Intent to Submit GFM Poster or GFM

#### Video Deadline

PASSED

### Video Submission Deadline

PASSED

### GFM Poster

Bring to meeting

### Scientific Program

The scientific program will include four award lectures, eight invited lectures, minisymposia and focused sessions. This year, we received a record number of abstracts. For 2014, our technical program includes a record of nearly 2,800 contributed abstracts in 36 parallel sessions and 145 entries to the Gallery of Fluid Motion. We look forward to 105 technical posters of which 32 student posters will be judged and best poster prizes will be awarded during the 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 2014 award winners are listed below and each awardee will give a lecture at the meeting.

### Fluid Dynamics Prize

Genevieve Comte-Bellot, Ecole Centrale de Lyon  
*Turbulence and Aeroacoustics*

### Stanley Corrsin Award Lecture

Eberhard Bodenschatz, Max Planck Institute for Dynamics and Self-Organization  
*Lagrangian Measurements in Turbulence: From Fundamentals to Applications*

### Andreas Acrivos Dissertation Award Recipient

Eric Vandre, University of Minnesota  
*Onset of Dynamic Wetting Failure—The Mechanics of High-Speed Fluid Displacement*

### Invited Lectures, Minisymposia, and Focus Sessions

Eight invited lectures on topics of broad interest to the DFD community will be given by experts in each field. The program also includes two minisymposia sessions and focus sessions on three topics. Each focus session topic has two sessions to accommodate the abstracts received. The topics discussed in the program also include fluid dynamics education, international research, and state of the art reviews.

#### Invited Speakers Include:

Jean-Marc Chomaz, LADHYX, Ecole Polytechnique, Paris  
*Art & Science Duality in Fluid Mechanics*

Thierry Poinsot, CERFACS, Toulouse  
*Control and Simulation of Thermoacoustic Instabilities*

Howard A. Stone, Princeton University  
*Life on a Surface in a Low-Reynolds Number Flow*

Ann Almgren, Lawrence Berkeley National Laboratory  
*Low Mach Number Modeling of Stratified Flows*

Tim Colonius, California Institute of Technology  
*Cavitation in Ultrasound and Shockwave Therapy*

Thomas Peacock, Massachusetts Institute of Technology  
*In Pursuit of Internal Waves*

Viswanathan Kumaran, Indian Institute of Science, Bangalore  
*Transition to Turbulence in a Soft-Walled Microchannel*

Fotis Sotiropoulos, University of Minnesota  
*Sand Waves in Environmental Flows—Insights Gained by LES*

#### Focus Sessions

*The Impact of Andy Acrivos on Today's Fluid Mechanics Science I*

*The Impact of Andy Acrivos on Today's Fluid Mechanics Science II*

*Respiratory Bio-Fluids Dynamics I*

*Respiratory Bio-fluids Dynamics II*

*Superhydrophobicity and Drag Reduction I*

*Superhydrophobicity and Drag Reduction II*

### Minisymposia Sessions

*Frontiers of Computational Science in Transport Phenomena*

*Honoring the Memory of Professor Howard Brenner*

### Posters

The number of poster research contributions to the Annual DFD Meeting has been growing over the past few years with over 105 posters submitted this year of which 32 are entered into a Student Poster Competition.

The Poster Session will be held prior to the Sunday night reception. Student posters will be judged and awarded 1st and 2nd Prize for “Best Poster” in several categories. Winners in each category will receive award certificates during the meeting reception and will be highlighted in the DFD Newsletter. While the 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 32nd 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. Poster and video entries must not duplicate one another. Outstanding posters, selected by a panel of referees, will be recognized during the meeting, will be displayed at the Annual APS meeting in March, 2015 and will appear in the September 2015 issue of the *Physics of Fluids*. Please see the meeting web site 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.

### Exhibitor and Sponsorship Opportunities

Exhibits will be centrally located on the 2nd and 3rd floor of the Moscone West Convention Center in the Lobby areas.

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

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

### Conference Reception

The Conference Reception will be held at the Moscone West Convention Center on Sunday evening, November 23, 2014. 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 \$100 each.

### Registration

INTERNET:

<http://apsdfd2014.stanford.edu/?q=content/registration>

Questions can be directed to:

[help@orchideventsolutions.com](mailto:help@orchideventsolutions.com)

### Meeting Hosts

The meeting is hosted by:  
Stanford University

with participation from:

UC Berkeley

Santa Clara University

NASA Ames Research Center

Lawrence Livermore National Laboratory

Sandia National Laboratories

Lawrence Berkeley National Laboratory

### Meeting Chairs

#### Sanjiva K. Lele

Meeting Chair

Professor

Department of Mechanical Engineering and

Department of Aeronautics & Astronautics

Stanford University

(650)723-7721

[lele@stanford.edu](mailto:lele@stanford.edu)

#### Gianluca Iaccarino

Meeting Co-Chair

William R. and Inez Kerr Bell Faculty Scholar

Associate Professor, Mechanical Engineering & ICME

Stanford University

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### Meeting Information

#### General Information

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Meetings and More

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### Abstract Submissions

#### Donald Mewha

Scientific Program Coordinator

APS

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### Registration

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### Exhibiting and Sponsorship Information

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### 2014 Meeting Website

<http://apsdfd2014.stanford.edu/>

### Future APS/DFD Meetings

#### 2015: Boston, MA

Professor Triantaphyllos Akylas, Meeting Chair

Massachusetts Institute of Technology

#### 2016: Portland, OR

Professor Raul Cal, Meeting Chair

Portland State University

#### 2017: Denver, CO

Professor Jean Hertzberg, Meeting Chair

University of Colorado, Boulder

#### 2018: Atlanta, GA

Professor P.K. Yeung, Meeting Chair

Georgia Institute of Technology

Professor Donald Webster, Co Chair

Georgia Institute of Technology

## Candidates for Vice-Chair (vote for one)



**Lance R. Collins**  
**Cornell University**

Lance Collins is the Joseph Silbert Dean of Engineering at Cornell University. Prior to that he served as the S. C. Thomas Sze Director of the Sibley School of Mechanical & Aerospace Engineering from 2005-2010. In 2011, Collins was part of the Cornell leadership team that successfully bid to partner with New

York City to build a new Applied Sciences campus on Roosevelt Island focused on innovation and commercialization in the tech sector. Prof. Collins joined Cornell in 2002, following 11 years as Assistant Professor, Associate Professor, and Professor of Chemical Engineering at the Pennsylvania State University. He earned his B.S.E. in 1981 at Princeton University and his M.S. in 1983 and Ph.D. in 1987 at the University of Pennsylvania, all in Chemical Engineering. His research combines simulation and theory to investigate a broad range of turbulent flow processes, including the motion of aerosol particles in turbulence (with application to atmospheric cloud processes), mixing and chemical reactions in turbulent flames, turbulent breakup of drops, and drag reduction due to polymer additives. In 2007 he was elected a fellow of the American Physical Society. He served as member-at-large on the DFD Executive Committee from 2008-2011 and served on the Nominating and Frenkiel Awards Committees. Additionally, he is past chair of the US National Committee on Theoretical & Applied Mechanics and serves on the Division of Engineering and Physical Sciences, both under the auspices of the National Academies.

**Statement:** I am honored to be a candidate for the vice chair of the APS DFD. As a member of the division for many years, I have come to appreciate the critical role the DFD and its Annual Meeting play in organizing the fundamental fluid mechanics community. The wide topical expanse, combined with the short-talk format, provides a unique opportunity for cross-fertilization of ideas across the branches of our discipline. As vice chair, I will work closely with the Executive Committee to ensure that future meetings remain vital and accessible to the entire community. In particular, I will focus on expanding the financial assistance we can provide young researchers through travel grants. It is critical that we continue to excite and attract the most brilliant young researchers to the rich challenges of our discipline. In addition to access, it is vitally important that our community learn to tell its story to the general public and the media as effectively as

possible. Nearly every “grand challenge” we face as a society (e.g., climate change, sustainable energy, potable water, food security) involves fluid mechanics. It is vitally important that we continue to expand our ability to communicate both the excitement of our discipline and the progress we make to the general public and to the federal agencies that sponsor our research. As vice chair, I will work closely with the Executive Committee to expand our efforts along these lines.



**Harindra Joseph Fernando**  
**University of Notre Dame**

Harindra Joseph Fernando is the Wayne and Diana Murdy Professor of Engineering and Geosciences at University of Notre Dame, with appointments in the Departments of Civil & Environmental Engineering and Earth Sciences (primary) and Aerospace & Mechanical Engineering (concurrent). He studied at the

University of Sri Lanka (BSc'79 in Mechanical Engineering, 1979), the Johns Hopkins University (MA'82 and PhD'83 in Geophysical Fluid Dynamics) and Caltech (Post-Doctoral Fellow, 1983-84). During 1984-2009, he was a faculty member in the Department of Mechanical & Aerospace Engineering (and the School of Sustainability) at Arizona State University, and was the founding Director of the Center for Environmental Fluid Dynamics (1994-2009). He is a recipient of the UNESCO Gold Medal (1979), NSF Presidential Young Investigator Award (1986), ASU Alumni Distinguished Research Award (1997), Rieger Foundation Distinguished Scholar Award (2001), William Mong Lectureship (Hong Kong, 2004), Telford Premium Prize (UK Institution of Civil Engineers, 2012) and Doctor Honoris Causa (University of Joseph Fourier/University of Grenoble, 2014). He is a fellow of the APS, ASME, AMS and AAAS, and is an elected member of the European Academy. During 2005-7, the New York Times, International Herald Tribune, NBC, PBS, Nature and other news outlets extensively featured his work on hydrodynamics of beach defenses. In 2008, the Arizona Republic Newspaper included him in “Tempe Five Who Matter” -- one of the five residents who have made a notable difference in the life of the city, for his work on Phoenix Urban Heat Island. He has served on the Sumatra Tsunami Survey Panel (NSF, 2005), Louisiana Coastal Area Science and Technology Board (2006-2011), AGU Committee on Natural Disasters (2006) and Catalan Water Institute Advisory Board (2007-12). He is currently serving on the NSF Directors' Environmental Science and Engineering Advisory Committee (2012-15), IAHR Fluid Dynamics Committee (Vice Chair, 2013-14) and the State of California Delta Science Board (2012-17). He also serves on the editorial boards of Theoretical and Computational Fluid Dynamics (Editor),

IAHR Journal of Hydro-Environment (Associate Editor) and EGS Journal of Non-Linear Processes in Geophysics (Editor). He is the Editor-in-Chief of the Journal of Environmental Fluid Dynamics. He also edited the Environmental Fluid Dynamics Handbook (Taylor & Francis, 2013), Human Health and National Security Implications of Climate Change (Springer, 2012), and Double Diffusive Convection (AGU, 1994). Currently he leads three multi-university DOD international projects dealing with Mountainous Terrain Weather, Air-Sea Interactions in the Northern Indian Ocean, and Remote Sensing of Atmospheric Waves and Instabilities. As for the APS, he served on the Frenkiel Award (2003-4) and Newsworthy Abstracts Selection (2008-10) committees, is an Associate Editor of Physics of Fluids (2013-15) and was central to the APS/AGU (Discoveries and Breakthroughs inside Science) documentary film on "Tracking Pollution from Space" (2008).

**Statement:** I am deeply honored to be nominated for the DFD Executive Committee Vice-Chair position. Being a member since 1985, I have witnessed the remarkable growth of DFD, the fluid dynamics research community as a whole, as well as the challenges and opportunities that loom. The ever-expanding DFD annual meeting may need a different structure to serve the attendees better and foster diversity in all fronts, and the formats of large meetings of other societies can be a starting point of discussion. High-profile lunchtime/keynote speakers from governmental organizations, industry and NGOs, policy forums on topics of current DFD interest and attracting more exhibitors may bolster the public visibility, press coverage and sponsorships of DFD meetings. This may help maintain reasonable registration fees while supporting more travel grants for students and developing-country participants. International participation at the annual meeting has been promising, and expansion of internationalization is possible by joining hands with European, Australasian and South American counterparts by fostering joint symposia and workshops at key meetings. Having been a PI of several European, Asian and Australian International Environmental Fluid Dynamics projects, I have experienced the researchers' appetite for fruitful partnerships, and the DFD can be a leader in fostering national and international collaborative opportunities. With the changing enterprise of journal publications, proactive efforts are needed to ensure the quality and health of DFD's flagship journal, Physics of Fluids. I would cherish the opportunity of serving the DFD Executive Committee in all matters of concerns to the community.

## Candidates for Member-at-Large (vote for two)



### Shelley Anna Carnegie Mellon University

Shelley Anna is Professor of Chemical Engineering and Mechanical Engineering at Carnegie Mellon University. She holds an affiliated appointment in Physics. Prior to joining Carnegie Mellon in 2003, Anna received her B.S. in Physics from Carnegie Mellon, and an M.S. and Ph.D. in Engineering Science from Harvard University in 2000. She worked as Senior Research Engineer at Solutia Inc., and then completed a postdoctoral fellowship at Harvard University. Anna's research interests are in the area of interfacial fluid mechanics and surfactant transport. Her research has used experiments and scaling analysis to establish design rules for droplet-based processing strategies in microfluidics, including developing a method for robustly producing uniform submicron droplets in a microfluidic flow-focusing device using a fluid dynamical phenomenon called "tip-streaming". Anna is the recipient of a 2005 NSF CAREER award, the 2006 George Tallman Ladd Research Award from the College of Engineering at Carnegie Mellon, and a 2012 Honorable Mention for a Carnegie Science Award for Emerging Female Scientist. She held the Russel V. Trader Career Junior Faculty Fellowship in Mechanical Engineering from 2011 to 2013. Anna has been active in service to the broader fluid mechanics community, currently serving as chair of the Fluid Mechanics Programming Committee (Area 1J) for AIChE, serving various roles in the Society of Rheology including organizing the technical program of the 2013 Annual Meeting, and co-chairing the 2015 Gordon Conference on Microfluidics. Within the APS Division of Fluid Dynamics, Anna has served on and chaired the Andreas Acrivos Dissertation Award Selection Committee.

**Statement:** The APS Division of Fluid Dynamics is a vibrant, growing community and this reflects the overall health of the field. I am honored to be considered for a role on the Executive Committee, and would be pleased to help support and promote the organization if selected. My past efforts in the broader fluid dynamics community reflect my own commitment to promoting young researchers and to bringing together researchers from academia and industry to share progress in the most challenging research questions. Specifically, within the Fluid Mechanics sessions at AIChE I worked to enhance the stature of the area poster session by raising sponsorship for a student poster competition, improving attendance and visibility for graduate students and postdocs. Within the Society

of Rheology, I began an effort to congratulate graduating Ph.D. students with a small gift from the Society, to encourage them to remain active. I look forward to the opportunity to share in related efforts within the Division.



**Claudia Cenedese**  
**Woods Hole Oceanographic Institution**

Claudia Cenedese is an Associate Scientist with tenure in the Department of Physical Oceanography at the Woods Hole Oceanographic Institution. She received her undergraduate degree (Laurea) in Environmental Engineering in 1995 from the University of Roma

'La Sapienza', in her hometown of Rome, Italy. She then went on to the University of Cambridge (England) for her Ph.D. (1998) in Applied Mathematics and Theoretical Physics. Now at the Woods Hole Oceanographic Institution (MA, USA), she conducts research on a variety of fluid flows in geophysical systems, like the ocean and the atmosphere. In particular, she is interested in turbulence and mixing in stratified flows, buoyancy driven surface and bottom currents, mesoscale vortices, river plume dynamics, and dynamics of plumes generated by melting glaciers. She uses laboratory experiments and theory to reveal the relevant dynamics of the flows of interest and develops mathematical models based on experimental observations to predict their behavior. She is a faculty member and has acted as co-director of the WHOI Geophysical Fluid Dynamics Summer School and was co-director of the Grand Combin International Summer School in Val d'Aosta, Italy, in 2010.

**Statement:** A member of DFD for the past 15 years, I started attending the annual meetings as a postdoc and have enjoyed watching the size of the meeting grow and the science presented evolve and reflect the new directions of Fluid Dynamics in the USA and worldwide. My work as a faculty member of the Geophysical Fluid Dynamics Summer School in Woods Hole keeps me in close contact with a wide variety of both graduate students and faculty from around the world whom I see at these meetings, and I organize the annual event for GFD alumni at the DFD annual meeting. These activities have provided me with contacts throughout the DFD community which would help me with the task of keeping APS-DFD as the hub of international fluid dynamics research through well-attended and executed meetings, educational outreach and the awards and fellowships programs. I believe it is important to have more women represented in fluid dynamics research at all levels, from graduate students to senior faculty, and I actively seek opportunities to encourage women through collaborative and mentoring activities. The nomination to serve on the executive

committee is an honor and, if elected, I will work to move the Division forward for all members.



**John O. Dabiri**  
**California Institute of Technology**

John Dabiri is a Professor of Aeronautics and Bioengineering at the California Institute of Technology (Caltech). He graduated from Princeton University with a B.S.E. degree summa cum laude in Mechanical and Aerospace Engineering in 2001. He earned an

M.S. degree in Aeronautics from Caltech in 2003, followed by a Ph.D. in Bioengineering with a minor in Aeronautics in 2005. His research focuses on the fluid mechanics of biological systems and engineering technologies inspired by them. These efforts include development of experimental and analytical methods in fluid mechanics that are applied in laboratory and field studies of aquatic animals. Technology applications currently being pursued include efficient and maneuverable underwater vehicles, fluid dynamic energy harvesting (e.g. wind and tidal energy), and biomedical diagnostics. His honors include a Presidential Early Career Award for Scientists and Engineers (PECASE) in 2009 for research in bio-inspired propulsion, and selection to the MIT Technology Review magazine list of 35 innovators under 35 in 2013 for wind energy research. He was awarded a MacArthur Fellowship in 2010. Currently, he serves as a Member-at-Large of the U.S. National Committee for Theoretical and Applied Mechanics, a member of the Defense Science Study Group, and an editor for the Proceedings of the National Academy of Sciences and the Journal of the Royal Society Interface. Within DFD, he has served as chair of the Acrivos Dissertation Award Committee and as a member of the Committee on Media and Science Relations. He has also co-organized minisymposia at DFD Annual Meetings related to wind energy, biological fluid mechanics, and Lagrangian coherent structures.

**Statement:** To sustain continued growth of the DFD, it is essential that we cultivate broader support for fundamental fluid mechanics research within the greater APS community, across federal funding agencies, and internationally. We have an opportunity to accomplish this goal by leveraging the central role of fluid mechanics in important and timely application areas including biomedicine, energy and the environment, and national defense. As a member of the Executive Committee, I would help to engage likeminded organizations such as the U.S. National Committee for Theoretical and Applied Mechanics in highlighting the accomplishments of the DFD membership and the impact of the DFD research portfolio on topics of national and international significance. A strategy

that diversifies our traditional sources of funding to include greater investment in basic fluid mechanics research from the NIH, DOE, and NSF Ocean Sciences (among others) will ensure healthy growth of the DFD by increasing access to resources for our current membership and by attracting the next generation of scientists and engineers to fluid mechanics.



**Candace Wark**  
**Illinois Institute of Technology**

Candace Wark is a Professor of Mechanical and Aerospace engineering at the Illinois Institute of Technology. She received her B.S. and M.S. in Mechanical Engineering from Michigan State University in 1981 and 1984 respectively and her Ph.D. in Mechanical Engineering from the Illinois Institute of Technology

in 1988. A member of IIT's Fluid Dynamics Research Center, she focuses on experimental fluid mechanics, with particular interest in turbulence and flows through complex environments such as urban settings and wind energy. She spent two years as a program manager for the turbulence program at the Office of Naval Research, and has served on the Frenkiel Award Selection Committee for the Division of Fluid Dynamics and also on the organizing committee for the 58th Annual DFD meeting in Chicago.

**Statement:** It is becoming apparent that the APS-DFD faces serious challenges due to the rapid and persistent growth of the annual meeting. How the executive committee of this organization addresses the overpopulation issue in the next few years will define the APS-DFD for decades to come. I will work to ensure that the quality of the meeting is not sacrificed for attendance numbers. Education of and communication with the public-at-large is essential to maintain research funding in our field. APS-DFD should be a mechanism of advocacy for the fluid dynamics community. I have been in regular attendance for over 30 years and helped organize the APS/DFD meeting in Chicago. I consider it an honor to be nominated for Member-at-Large and will work to promote and advance our discipline.

## Candidates for Division Councilor (vote for one)



**Professor Ann R. Karagozian**  
**UCLA Department of Mechanical and Aerospace Engineering**

Ann Karagozian has been a Professor in the Department of Mechanical and Aerospace Engineering at UCLA since 1982. Her research interests lie in the fluid mechanics of combustion and propulsion systems. Over the years she and her students and collaborators have worked on

problems involving flame-vortex interactions, jets in crossflow, fuel droplet combustion, acoustically coupled combustion instabilities, and numerical simulation of detonation and turbulent combustion phenomena. Professor Karagozian is a prior Chair of the American Physical Society/Division of Fluid Dynamics (2010-11), and also served during 2008-12 as Vice Chair, Chair-Elect, and Immediate Past Chair. She has been a member of the APS/DFD Executive Committee, Fellowship Committee, Nominating Committee, Media and Science Relations Committee, Fluid Dynamics Prize Committee, and the Frankiel Award Committee. She was a member of the Air Force Scientific Advisory Board for nearly a dozen years, twice receiving the Air Force Decoration for Exceptional Civilian Service, serving as AFSAB Vice Chair (2005-2009), and chairing numerous technical studies, including a 2006 study on Air Vehicle Fuel Efficiency and a 2010 study on Future Launch Vehicles. She is a Fellow of APS, AIAA, and ASME, and was a 2013-14 Midwest Mechanics Seminar speaker. She received her B.S. in Engineering from UCLA in 1978 and her M.S. and Ph.D. in Mechanical Engineering from the California Institute of Technology in 1979 and 1982, respectively. More information on Karagozian's UCLA Energy and Propulsion Research Laboratory may be found at <http://www.seas.ucla.edu/combustion/>.

**Statement:** The Division of Fluid Dynamics within the American Physical Society has a distinguished history in providing a venue for communicating the state-of-the-art in fluid mechanics research. In my 32+ years of association with the organization, I have been amazed by the growth in the range of topics and application areas presented at the APS/DFD annual meeting, as well as the extraordinary increase in the number of attendees and simultaneous sessions over the past decade. Surely this

is evidence of the continued vibrancy in the field and the growing interest, in particular, among young researchers, in fluid flows and their applications. I believe that among the challenges that face the APS in general and the DFD in particular include (1) fostering and developing technical talent and interests in the next generation of engineers and physical scientists and (2) enhancing public awareness, especially in government entities, of the range of societal benefits of basic research in fluid physics. In that vein, the work of the APS/DFD Councilor is critical to increasing the visibility of the Division within the APS Council and in the worldwide physics community more broadly. I will do my best to enhance such visibility for the benefit of the Division and our profession.



**Jim Wallace**  
**University of Maryland**

Jim Wallace received his bachelors and masters degrees, 1962 and 1964, at Georgia Tech and his D. Phil. in Engineering Science at Oxford University, 1969. He was a research scientist at the Max-Planck-Institute für Strömungsforschung in Göttingen from 1969 until he joined the faculty of the University of Maryland in

1975. He has held several administrative positions: 1985-86 as Assistant Provost, 1986-87 as Associate Dean and 1993-1998 as Mechanical Engineering Graduate Studies Director. He founded and was Director of the Science, Technology and Society Program, 1998-2001, and he has been the Director of the Burgers Program for Fluid Dynamics since 2006. He does experimental research on turbulent shear flows, in particular with the development of techniques for measuring and analyzing velocity gradient tensor fields. He recently has investigated scalar dispersion in shear flows with environmental and mixing applications, as well as turbulence in high temperature flows. He currently is involved in the renewed effort to understand the structure and transport dynamics of bounded turbulent flows.

In addition to a term as the APS Division of Fluid Dynamics Chair in 2003-04, he has served in other leadership roles and on many of the committees of the DFD: Fellowship Committee, 1993-94, 1998-99 and Chair, 2001-02; Frenkiel Prize Committee, 1995-96; Nominating Committee, 1996-97 and Chair, 1997-98; Fluid Dynamics Prize Committee Vice-chair and then Chair, 1996-98; Program Committee, 2001-02. He chaired the Organizing Committee for the DFD's annual meeting in Washington,

D.C., Nov. 2000. He was elected and served as Vice-Chair of the DFD, 2001-02; Chair-Elect, 2002-03 and Past-Chair, 2004-05. Since 2010 he has represented the DFD on the APS Council. He became an APS Fellow in 1989. Among other recognitions of his research and teaching are the: Distinguished Scholar-Teacher Award of the University of Maryland, College Park (1987), induction in the Academy of Distinguished Engineering Alumni of the Georgia Institute of Technology (1995); University System of Maryland Board of Regents Faculty Award for Excellence in Teaching (2004), and Maryland Professor of the Year, Carnegie Foundation for the Advancement of Teaching (2005).

**Statement:** I have served one four-year term as the DFD Councilor representative on the APS Council, and I would like the opportunity to serve a second term. In my first three years, the APS Council seemed to me, and many others, to serve primarily as a rubber-stamp for decisions made by the Executive Committee of the Council. However, during my last year of this term I have been much more meaningfully involved by helping to shape the new governance structure for the APS that is presently under consideration. Under this new structure, the Council's role is supposed to be significantly enhanced because it will have the sole responsibility for science policy of the APS. I think it will be important to have members on the Council who have knowledge of and who have participated in the restructuring process to make sure that the new structure operates as intended and for the benefit of the APS as a whole and for each of its units. I am now known as an engaged member of the Council, so I think I can take on this task effectively.

If reelected as DFD Councilor, I will work hard to continue fostering a greater appreciation within the Council for our discipline - fluid dynamics. This is the primary professional identification of our DFD members who come from a broad range of research communities in addition to physics: engineering, applied mathematics and the geosciences, among others. Many of the public policy issues that the APS addresses are greatly impacted by fluid dynamics: e.g. climate change, energy use sustainability and environmental pollution. I will make every effort to assure that DFD views and input are heard regarding APS policy positions and public statements about these issues. I am now emeritus at the University of Maryland, although I am still active in research. This status gives me time to devote to the role of APS Councilor. Also, the university is only a few minutes away from the APS Headquarters in College Park, so it is easy for me to interact with the APS staff when this is needed.

# APS/DFD 2014-2015 Leadership & Contact Information

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

## EXECUTIVE COMMITTEE

**Chair:**  
**Nadine Aubry**  
(11/13 - 10/14)  
*Northeastern Univ*

**Chair-Elect:**  
**James Duncan**  
(11/13 - 10/14)  
*Univ of Maryland-  
College Park*

**Vice Chair:**  
**Ellen Longmire**  
(11/13 - 10/14)  
*Univ of Minn-  
Minneapolis*

**Past Chair:**  
James Riley  
(11/13 - 10/14)  
*Brown Univ*

**Secretary/Treasurer:**  
Karen Flack  
(11/12 - 10/15)  
*US Naval Academy*

**Councillor:**  
**James Wallace**  
(01/11 - 12/14)  
*Univ of Maryland-  
College Park*

**Member-at-Large:**  
Sanjiva Lele  
(11/11 - 10/14)  
*Stanford Univ*

**Member-at-Large:**  
Detlef Lohse  
(11/11 - 10/14)  
*Univ of Twente*

**Member-at-Large:**  
**Jonathan Freund**  
(11/12 - 10/15)  
*Univ of Illinois - Urbana*

**Member-at-Large:**  
Beverly McKeon  
(11/12 - 10/15)  
*Cal Inst of Tech (Caltech)*

**Member-at-Large:**  
Paul Linden  
(11/13 - 10/16)  
*Purdue Univ*

**Member-at-Large:**  
Robert Moser  
(11/13 - 10/16)  
*Univ of Texas - Austin*

## COMMITTEES

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

**Ivan Marusic**  
(12/14)  
Chair

**Howard H. Hu**  
(12/14)  
**Constantine Megaridis**  
(12/14)

**Minami Yoda, Georgia**  
(12/14)  
**Said Elghobashi**  
(12/15)  
Vice Chair

**John Foss**  
(12/15)

**Gareth McKinley**  
(12/15)

**Samuel Paolucci**  
(12/15)

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

**James Duncan**  
Chair

**Ellen Longmire**  
Vice Chair

**Andrew Belmonte**  
(12/14)

**Daniel J. Bodony**  
(12/14)

**Eric Lauga**  
(12/14)

**Jonathan Posner**  
(12/15)

**Lian-Ping Wang**  
(12/15)

**Ranga Narayanan**  
(12/16)

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

**Ellen Longmire**  
Chair

**James Duncan**  
Vice Chair

**Dan S. Henningson**  
(12/14)

**Joseph C. Klewicki**  
(12/14)

**Richard Lueptow**  
(12/14)

**Kyle Squires**  
(12/14)

**Hyung Jin Sung**  
(12/15)

**PK Yeung**  
(12/15)

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

**Charles W. Heno**  
(12/13)  
Chair

**David Santillan**  
(12/14)

**Lawrence Ukeiley**  
(12/14)

**Jun Sakakibara**  
(12/15)

**Anne Staples**  
(12/15)

**Oleg V. Vasilyev**  
(12/15)

**Ken Christensen**  
(12/16)

**Beverly McKeon**  
(12/16)  
Vice Chair

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

**Moshe Matalon**  
(12/13)  
Chair

**Yukio Kaneda**  
(12/14)

**Kathleen J. Stebe**  
(12/14)

**John C. Wettlaufer**  
(12/14)

**Jimmy Feng**  
(12/15)

**Michael Plesniak**  
(12/15)  
Vice Chair

**Jose Weisfreid**  
(12/15)

**Elaine Oran**  
2013 Prize Recipient

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

**Paul H. Steen**  
(12/14)  
Chair

**Emily S. C. Ching**  
(12/14)

**Sandip Ghosal**  
(12/14)

**Paul Neitzel**  
(12/15)  
Vice Chair

**Demitrios Papageorgiou**  
(12/15)

**Yuriko Renardy**  
(12/15)

**Stephen Wereley**  
(12/15)

**Michael Brenner**  
2013 Award Recipient

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

**Kausik Sarkar**  
(12/14)  
Chair

**Alberto Aliseda**  
(12/14)

**Prosenjit Bagchi**  
(12/14)

**Arezoo Ardekani**  
(12/15)

**"Bala" Balachandar**  
(12/15)  
Vice Chair

**Daniel Haworth**  
(12/15)

**Pavlos Vlachos**  
(12/15)

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

**Sharath S. Girimaji**  
(12/14)  
Chair

**Malcolm J. Andrews**  
(12/14)

**Howard A. Stone**  
(12/14) AE from POF

**Kendra V. Sharp**  
(12/14)

**Peyman Givi**  
(12/15)

**Sutanu Sarkar**  
(12/15)  
Vice Chair

**Arne Johansson**  
(12/15)

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

**Rajat Mittal**  
(12/14)  
Chair

**John O. Dabiri**  
(12/14)

**David L. Hu**  
(12/14)

**Ann Karagozian**  
(12/14)

**Jeannette Yen**  
(12/14)

**Bud Homsy**  
(12/15)  
Vice Chair

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

**Frank G. Jacobitz**  
(12/14)  
Chair

**David R. Dowling**  
(12/14)

**Rachel Pepper**  
(12/14)

**Hao Lin**  
(12/15)  
Vice Chair

**Carolyn Ren**  
(12/15)

**Reza Sheikhi**  
(12/15)

**DIVISION WEBSITE  
DEVELOPMENT OFFICER**  
Jeff Eldredge

**GALLERY OF FLUID  
MOTION COORDINATOR**

Ken Kiger