

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

The **63rd Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD)** will be held in Long Beach, California from November 21-23, 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. Please note that due to the very large number of submitted abstracts this year, the DFD meeting will run through 5 pm on Tuesday, November 23.

#### 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 Hyatt Regency Long Beach. The Convention Center is conveniently located close to other hotels, the **Aquarium of the Pacific**, where the Sunday evening 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, 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 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 attendees.

#### Long Beach

Long Beach is the second largest city in the metropolitan Los Angeles/Long Beach area. 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 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 a high-speed catamaran one hour ride. Please visit Long Beach online at <http://www.visitlongbeach.com/> for more information.

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

### Housing and Meeting Registration

Registration for the meeting and housing can be accessed through the meeting website: <http://dfd2010.org>. Links to the registration and hotels are accessible from the conference website. 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 at the website. 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  
Long Beach, CA 90802  
Main Hotel Phone: 562-491-1234  
Reservations: 402-592-6464 or 888-421-1442  
FAX: 562-624-6002  
<https://resweb.passkey.com/go/APS2010LB>  
\$189.00++ (Single/Double),  
\$214.00 ++ (Triple),  
\$239.00 ++ (Quad)

#### The Westin Long Beach

333 East Ocean Boulevard  
Long Beach, CA 90802  
Main Hotel Number: 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 ++ (Single/Double),  
\$194.00 ++ (Triple),  
\$219.00 ++ (Quad)

#### Renaissance Long Beach Hotel

111 East Ocean Boulevard  
Long Beach, CA 90802  
Main Hotel Number: 562-437-5900  
Reservations: 1-800-MARRIOTT (1-800-627-7468)  
FAX: 562-753-2153  
<http://cwp.marriott.com/lgbrn/aps>  
\$169.00 ++ (Single/Double),  
\$184.00 ++ (Triple),  
\$199.00++ (Quad)

#### Marriott Courtyard Long Beach Downtown

500 East First Street  
Long Beach, CA 90802  
Main Hotel Number: 562-435-8511  
Reservations: 800-228-9290  
Reservations by FAX are not accepted  
For Rooms with 2 Queen Beds at the group rate  
click [here](#)  
For Rooms with 1 King Bed at the group rate  
click [here](#)  
\$129.00 ++ (Single/Double/Triple/Quad)

#### Key Dates:

##### Registration

##### NOW

Meeting registration available online  
Check <http://dfd2010.org> for more information

##### October 11th

Early meeting registration ends

##### October 12th thru November 18th

Regular registration rate

##### November 8th

Cancellation deadline (no refunds after this date)

##### November 18th

On-site meeting registration required after this date

#### Hotels

##### NOW

Reservations open (reduced rate)

##### October 19th (earlier if rooms sell out)

Reduced rates end

#### Gallery of Fluid Motion

The deadline for submission of the intent to submit a poster or video has passed

**Video submission deadline: October 15th**

**Poster submission deadline: Bring to the meeting**

#### 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 2000 contributed abstracts, divided among approximately 24 concurrent sessions, are **scheduled**.

### 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 are as follows:

#### Fluid Dynamics Prize

John Hinch, *Cambridge University*

#### Francois Frenkiel Award

Edwin F. Greco and Roman O. Grigoriev,  
*Georgia Institute of Technology*

#### Andreas Acrivos Dissertation Award

Matthew Paoletti, *University of Maryland*  
Advisor: Daniel Lathrop

Each award winner will give a lecture at the meeting.

### Invited Lectures

The 2010 Annual DFD Meeting will have eight invited lectures. Each invited lecture will be thirty minutes long, followed by five minutes for questions. The lectures are (in alphabetical order by presenter):

#### Particle Laden Viscous Fluid Flows and the Gulf of Mexico Oil Spill

Andrea Bertozzi, *University of California, Los Angeles*

#### Dynamics of Electrically Conducting Fluids

Danielle Carati, *Universite Libre de Bruxelles*

#### Splashes

Chrisophe Clanet, *LadHyX, Ecole Polytechnique, France*

#### Ocean Circulation and Surface Fluxes: Dynamics and Energetics

Ross Griffiths, *The Australian National University*

#### Turbulence in Strongly Stratified Flows

James Riley, *University of Washington*

#### Wetting, Spreading, and Capillary Adhesion: Putting Shape-Instability to Purpose

Paul Steen, *Cornell University*

#### Fluid Simulation in the Movies: Navier and Stokes must be Circulating in their Graves

Jerry Tessendorf, *Rhythm and Hues Studios*

#### Dynamics of Suspended Colloidal Particles Near a Wall

Minami Yoda, *Georgia Institute of Technology*

### Minisymposia

The 2010 Annual Meeting will have four minisymposia. Each minisymposium will consist of five talks, each twice as long as a regular contributed talk. The minisymposia and their organizers are:

#### Biological Perspectives on Locomotion

Eva Kanso, *University of Southern California*

#### Computational Strategies for the Simulation of Nonlinear Waves and Turbulence in Environmental Flows

Peter Diamessis, *Cornell University*

#### Optical Effects of Turbulence

Darek Bogucki, *Texas A&M Corpus Christi*

#### Microhydrodynamics of Lipid Bi-Layer Membranes

Petia Vlahovska, *Dartmouth College*

### 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*. Information on Gallery of Fluid Motion entries may be found **online**.

### 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 very welcome to stop by and interact with the exhibitors. Sponsorship opportunities are listed at 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 walking distance of the Convention Center and meeting hotels and has a mixture of indoor and outdoor areas. There are 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 Southern California attractions. Among the possibilities are the Getty Center in Los Angeles or the Getty Villa in Malibu; see <http://www.getty.edu/> for information.

### Meeting Hosts

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](mailto: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: (301) 240-396-5900  
 Email: [mtgs911@aol.com](mailto:mtgs911@aol.com)

### 2010 Conference Website

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

### Future APS/DFD Meetings

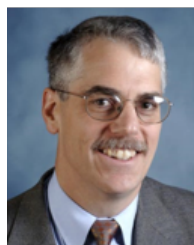
2011 Baltimore, MD  
 Prof. Andrea Prosperetti, Meeting Chair  
*Johns Hopkins University*

2012 San Diego, CA  
 Prof. Juan Lasheras, Meeting Chair  
*University of California San Diego*

## Candidates for APS/DFD Officers and Executive Committee Positions

The following individuals are nominees for APS/DFD Officer and Executive Committee positions. Please remember to vote online by Friday, October 20, 2010 (see an email from [meiburg@engineering.ucsb.edu](mailto:meiburg@engineering.ucsb.edu) sent on August 20, 2010 for instructions).

### Candidates for Vice-Chair (subsequently Chair-Elect and Chair)—vote for one of these two:



#### Robert Moser *University of Texas, Austin*

**Background:** Robert D. Moser is the Deputy Director of the Institute for Computational Engineering and Sciences, the W. A. "Tex" Moncrief Chair of Computational Engineering and Sciences and Professor of Mechanical Engineering at the University of Texas

at Austin. He studied mechanical engineering at the Massachusetts Institute of Technology, where he received a B.S. Degree in 1978, and at Stanford University where he earned a Ph.D. in 1984. Before coming to the University of Texas in 2005, Moser was a research scientist at the NASA-Ames Research Center (until 1995) where he worked in the Turbulence Physics Branch. He then joined the University of Illinois as a Professor of Theoretical and Applied Mechanics, and also directed the fluid dynamics group of the Center for Simulation of Advanced Rockets. Moser is currently serving as director of the Center for Predictive Engineering and Computational Sciences (PECOS), a DOE funded center dedicated to verification, validation and uncertainty quantification in simulations of complex systems, particularly reentry vehicles. Moser conducts research on the modeling and numerical simulation of turbulence and other complex fluid flow phenomena. His research has been applied to such diverse systems as hypersonic reentry vehicles, solid propellant rockets, micro-air vehicles and the human cardiovascular system, and is funded by NSF, AFOSR, DDOE and NASA. He is author or coauthor of 65 scientific papers and serves as an associate editor for Physics of Fluids. He is a Fellow of the American Physical Society, and was awarded the NASA Medal for Exceptional Scientific Achievement.

**Statement:** I have been an active member of the APS Division of Fluid Dynamics since 1990 and have been privileged to serve the division in several capacities over the years. In particular, I served on the Executive Committee, the Frenkiel Award Committee and the Fellowship Committee, and was co-organizer of the APS-DFD annual meeting in Chicago in 2005. I look forward to the prospect of serving the Division again as Vice-Chair and Chair, should that privilege be granted.



**James Riley**  
**University of Washington**

**Background:** Jim Riley is a Professor in Mechanical Engineering and an Adjunct Professor in Applied Mathematics at the University of Washington. The UW PACCAR Professor of Engineering, he received his B.A. in Physics from Rockhurst College in 1965, and

his Ph.D. in Mechanics from Johns Hopkins in 1972 working with Stan Corrsin. He spent a year as a post-doctoral fellow at the National Center for Atmospheric Research before joining the Naval Research Laboratory as a Research Scientist. He joined Flow Research, Inc., in 1974, and then in 1983 took a faculty position at the University of Washington. Riley is a Fellow of the APS and also of the ASME. While on sabbatical at Joseph Fourier University in Grenoble, he occupied the visiting chair in industrial mathematics. More recently he was a senior fellow at the Isaac Newton Institute for Mathematical Sciences at Cambridge University. He is an associate editor for the *Journal of Fluid Mechanics*, a member of the Editorial Committee for the *Annual Review of Fluid Mechanics*, an associate editor for the *Applied Mechanics Reviews*, and also an associate editor for the *Journal of Turbulence*. His research and teaching emphasize transitioning and turbulent flows. He has worked extensively on a broad range of problems, with his current research emphasizing turbulent, chemically reacting flows and also waves and turbulence in density-stratified and in rotating flows. Riley has been a very active member of the DFD, both at annual meetings but also in serving the DFD in various ways. He has served as Secretary/Treasurer and as Chair of the DFD, as well as working on a number of DFD committees. In addition he was the Chair of the Annual Division Meeting held in Seattle in 2004.

**Statement:** I am honored to stand as a candidate for the position of vice-chair of the Division of Fluid Dynamics. I think that the Division is the preeminent organization for fluid dynamicists, and can play an important role in the lives and careers of its members. The most important responsibility of the DFD Executive Committee is the Annual Division Meeting, and the Committee continues to make improvements to various aspects of this meeting. Important issues remain, however, foremost of which is how to deal with the ever increasing size of the annual meeting. But the Executive Committee, and the various DFD Committees acting on our behalf, do much more. I think that two very important, and related, issues before the Executive Committee and the DFD membership are: (i) better promotion of our field to various constituencies, including the general public, government agencies, and students at all levels; and (ii) leveraging the newer technologies to improve college and graduate education in fluid mechanics.

**Candidates for Division Councillor—  
vote for one of these two:**



**Guenter Ahlers**  
**University of California,  
Santa Barbara**

**Background:** Guenter Ahlers received his Ph.D. in Physical Chemistry from the University of California at Berkeley and became a Member of Technical Staff at Bell Laboratories in 1963. At Bell he worked on critical phenomena

near the superfluid transition of liquid  $4\text{He}$  and near magnetic phase transitions. In 1970 he initiated research on Rayleigh-Benard convection that led to the experimental observation of chaos in a fluid-mechanical system. In 1979 he moved to UCSB and extended his research to a broader class of pattern-forming systems including Taylor-vortex flow. During the last decade he studied turbulent Rayleigh-Benard convection at very large Rayleigh numbers. His work was published in over 280 papers in the *Journal of Fluid Mechanics*, *Physics of Fluids*, *Physical Review*, *Physical Review Letters*, and others. He was elected a Fellow of the American Physical Society in 1971 and of the American Association for the Advancement of Science in 1990. In 1978 he received the IUPAP Fritz London Award for his contributions to critical phenomena and to bifurcations in nonlinear fluid-mechanical systems. In 1989 he received the Alexander von Humboldt Senior U.S. Scientist Award. In 1998 he was a Guggenheim Fellow. In 1982 he was elected to the U.S. National Academy of Sciences, and in 2004 he was elected a Fellow of the American Academy of Arts and Sciences. He received the Fluid Dynamics Prize of the APS in 2007. He served on or chaired numerous committees, including the Materials Research Advisory Committee of the NSF, the Fritz London Memorial Award Committee, the Buckley Prize and the Onsager Prize Committees of the APS, the NASA Life and Microgravity Science and Applications Advisory Committee. In 1999 he was Chair of the Committee on Committees of the APS. In 1988 he served as Vice Chair of the Executive Committee of the DFD, and from 1995 to 1998 he represented the Division as their APS Councillor. While Councillor, he was elected by the Council to serve on the APS Executive Committee. He was a member of the APS Publication Oversight Committee from 2007 to 2010.

**Statement:** I believe that my previous experience as DFD Vice Chair (1988) and Councillor (1995 to 1999) gives me a good understanding of our Division that will enable me to represent the DFD effectively on the APS Council. My work on the APS Executive Committee (1996 to 1999), as Chair of the APS Committee on Committees (1999), and on the APS Publication Oversight Committee (2007 to 2010) provides me with a good understanding of how

the APS functions. I believe that the work of a Councilor has two aspects. On the one hand he or she should effectively represent the interests and needs of the Division in relation to the APS. On the other, she or he should contribute effectively from a broader viewpoint to the needs and interests of the APS. In this latter function the particular divisional experience and background can be brought to bear positively on the more global issues.



**James Wallace**  
**University of Maryland**

**Background:** 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-Institut fuer Stroemungsforschung in

Goettingen 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 Board Chair 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 its 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, DC, Nov. 2000. He was elected and served as Vice-Chair of the DFD, 2001-02; Chair-Elect, 2002-03 and Past-Chair, 2004-05. 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:** The DFD Councilor is the Division of Fluid Dynamics' representative on the APS Council, the primary governing body of the APS. The Council sets the society's policy, approves its plans and issues position statements, and is a source of ideas to the Council's Executive Board. If elected, 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 such as the recent catastrophic oil spill. I would make every effort to assure that the DFD is represented on APS bodies that formulate policy and issue statements on such issues. The DFD needs to play a more prominent role in the large annual APS March Meeting. We currently co-organize some sessions with the Statistical and Non-linear Physics Topical Group (GSNP); we could do the same with other APS units, e.g. Biological Physics (DBP), Chemical Physics (DCP), Computational Physics (DCOMP), and Polymer Physics (DPOLY). I would work with the DFD Program Committee to advance this collaboration. The continuing health of fluid dynamics depends on our ability to communicate its centrality to the very large range of scientific and technological research areas that have relevance to the well-being of the nation. The DFD is attempting to orchestrate this effort through its Committee for Media and Public Relations, and this needs to be integrated with the APS Committee for Media Relations. I would work on fostering this integration. I am semi-retired 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 would be very easy for me to attend the Council meetings and interact with the APS leadership.

**Candidates for Executive Committee—  
vote for two of these four:**



**Michael Brenner**  
**Harvard University**

**Background:** Michael Brenner received his PhD in Physics from the University of Chicago in 1994. He then moved to MIT where he was a faculty member in the Mathematics department. He moved to Harvard University in 2001 where he is now the Glover Professor

of Applied Mathematics and Applied Physics and Harvard College Professor. His research interests focus on using mathematics to contribute to a wide range of problems in science and engineering. Current interests include



problems in material science (e.g. self assembly of colloids, ion beam sputtering), fluid mechanics (e.g. splashing of fluid droplets, algorithm development in computational atmospheric chemistry, singularity formation in the Euler equations, turbulent self assembly) and biology (e.g. fungal spore ejection, the shape of bird beaks and nuclear pore translocation mechanisms).

**Statement:** Fluid mechanics is vibrant, exciting and important. The DFD plays a critical role in making sure that this is recognized and understood by the outside world. I am enthusiastic about helping with this mission as a member of the Executive committee.



**James Duncan**  
*University of Maryland*

**Background:** Jim Duncan is a Professor of Mechanical Engineering at the University of Maryland at College Park. He received a Bachelor of Science in Mechanical Engineering from Brown University in 1971 and a Doctor of Philosophy in Geophysical Fluid Dynamics from The Johns Hopkins University in 1979. He worked as a research scientist at Hydronautics, Inc. and Flow Research Company until he joined the faculty of the University of Maryland in 1987. Jim's research has included studies of fundamental aspects of breaking waves, cavitation bubbles, fluid-structure interactions and computer vision. Jim was awarded the Poole and Kent Senior Faculty Teaching Award in the College of Engineering at the University of Maryland in 2003, and received the Distinguished Scholar Teacher Award from the University of Maryland in 2004. In addition to his research and teaching duties, he was the Director of the College Park Scholars Science, Technology and Society program for undergraduates at the University of Maryland from 2002 to 2007. Jim became a Fellow of the American Physical Society in 1999. He has served in a number of roles in the administration of the Division of Fluid Dynamics. He was a member of the local organizing committee of the 2000 Annual Meeting, the Division Coordinator of the Gallery of Fluid Motion from 2001 to present, the Secretary-Treasurer from 2004-2006, and the chair of the local Media Relations Committee for the annual DFD meetings from 2008 to present.

**Statement:** The main functions of the DFD executive committee are to arrange for and oversee the annual meeting; to represent the division within the APS; to promote DFD members through nominations of APS Fellows, DFD awards and research advertisements; and to promote the subject of fluid dynamics (and DFD members) to the public, lawmakers, funding agencies and the wider scientific community. The committee has done excellent work in all of these areas while maintaining

only modest annual increases in meeting registration fees. In the future, as in the past, we must be sure that the Division continues to incorporate new research trends in its meetings through both the inclusion of new session topics and the selection of appropriate invited talks. Our travel-grant program, with which I am familiar through my role as Secretary-Treasurer, has enabled many students and foreign scientists to attend our meetings, and should be continued. I am pleased to have led (along with Jim Brasseur) our recent organized efforts to publicize the research presented at our meetings. This effort has resulted in a number of articles in well-known newspapers, magazines and websites and has also, I believe, strengthened our relationship with NSF. The Executive Committee is poised to expand this effort through creation of a standing committee, and I strongly support this decision. I also believe we should increase our efforts to form relationships with a wide variety of funding agencies. As Member-at-Large of the DFD Executive Committee, I would pursue all of the above goals and would seek out new initiatives as well.



**Robert Krasny**  
*University of Michigan*

**Background:** Robert Krasny received his B.S. and M.A. degrees in Mathematics at the State University of New York at Stony Brook, in 1973 and 1975, respectively. During 1977-1979 he worked at Brookhaven National Laboratory as a computer programmer in the Reactor Safety Division. He received the Ph.D. degree in Applied Mathematics at the University of California, Berkeley, in 1983, and was an NSF Postdoctoral Fellow at the Courant Institute during 1984-1987. He became Assistant Professor of Mathematics at the University of Michigan in 1987 and was promoted to Associate Professor in 1990 and Professor in 1996. Krasny's research concerns computer simulation of vortex-dominated flows, especially vortex sheets and vortex rings, using Lagrangian particle methods to gain insight into the dynamics of these flows. Krasny gave an invited lecture at the International Congress of Mathematicians in Kyoto in 1990. In 2000 he was appointed Arthur F. Thurnau Professor at the University of Michigan for contributions to undergraduate education. In 2007 he was elected as an APS Fellow in the Division of Fluid Dynamics.

**Statement:** The APS Division of Fluid Dynamics plays a key role in advancing the field of fluid dynamics. The applications of fluid dynamics are becoming more diverse, driven by the need to address societal problems in areas such as energy, health, and the environment. The DFD draws its members from academia, the national labs, and industry, and from all over the U.S. and around the globe.

The 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 would be very easy for me to attend the Council meetings and interact with the APS leadership. DFD annual meeting is the premier showcase for new developments in the field. The annual meeting has grown in size, reflecting the expanding scope of fluid dynamics, and recent meetings have also included special sessions on education. The DFD performs outreach to strengthen funding support for fluid dynamics research and to increase public understanding of the importance of the field. The Executive Committee is entrusted to ensure the continued vitality of the DFD and its activities outlined above. If elected as member-at-large I will work to promote these goals.



**Michael Plesniak**  
**George Washington University**

**Background:** Dr. Michael W. Plesniak is Professor and Chairman of the Department of Mechanical and Aerospace Engineering at the George Washington University. He holds a Ph.D. in Mechanical Engineering from Stanford University, and B.S. and M.S.

degrees from the Illinois Institute of Technology. Prior to joining GW, he was a Professor of Mechanical Engineering at Purdue University, the Eugene Kleiner Professor for Innovation in Mechanical Engineering at Polytechnic University of New York, and the Director of the Fluid Dynamics and Hydraulics Program at the National Science Foundation (NSF). He received the 2006 NSF Director's Award for Collaborative Integration for his contributions to NSF's Cyberinfrastructure initiative. Dr. Plesniak is a Fellow of the American Physical Society, a Fellow of the American Society of Mechanical Engineers, an Associate Fellow of the American Institute for Aeronautics and Astronautics, and a member of Sigma Xi, the Scientific Research Society. He has authored over one hundred refereed archival publications and conference papers, over fifty non-refereed publications and presentations, and has presented numerous invited seminars and keynote addresses. Prof. Plesniak has made significant contributions to education and research in the discipline of fluid dynamics. His specific contributions are in the field of turbulent flow physics for applications ranging from gas turbine cooling to biological flows. Current research interests include: bio fluid mechanics, turbulence transport and mixing enhancement, three-dimensional boundary layers, gas turbine cooling, environmentally-benign

consumer aerosol sprays, renewable energy, and entrainment control. His research group is currently studying the physics of phonation and cardiovascular flows. In the area of public policy advocacy, Dr. Plesniak is a member of the national level AIAA Public Policy Committee (Aeronautics subcommittee), ASME Inter-Sector Committee on Federal Research and Development (NSF Task Force), and the Center for the Study of the Presidency and Congress (Infrastructure Issue Team, 2009-10).

**Statement:** My association with the APS DFD has been a long and rewarding one. I have participated in nearly all annual DFD meetings since I was an undergraduate student attending my first meeting in 1982. I am honored to have been nominated to run for the position of Member-at-Large for the DFD Executive Committee. Over the past twenty years I have been actively involved in DFD activities through service on various committees including: Fluid Dynamics Prize Selection Committee; External Affairs Committee (Chair 2009); ad hoc Committee on Cyber Fluid Dynamics, and ad hoc Committee on Media and Public Relations. In a broader context I have served the fluid dynamics community via activities such as AIAA Fluid Dynamics Technical Committee; ASME Fluids Engineering Division, Fluid Mechanics Technical Committee and Awards Committee. I served as an Associate Editor for the ASME Journal of Fluids Engineering from 2002-2005. From 2002-2006 I was the Program Director for the Fluid Dynamics and Hydraulics program at the National Science Foundation. In that capacity I worked closely with APS DFD in advocating for funding for the fluid dynamics community and increasing visibility of the activities and accomplishments of the community. These NSF activities led to my involvement in public policy advocacy thru the AIAA (National) Public Policy Committee and ASME Inter-Sector Committee on Federal R&D (Public Policy/ Government Relations). I was truly humbled to receive the DFD inaugural award in 2009 for 'Extraordinary Service to Fluid Dynamics'. While awards are always appreciated, the best reward is the gratification that comes from serving our community and in raising awareness of the important activities in which we are engaged. I have a unique blend of experience from the perspective of a fluid dynamics faculty researcher, a manager in a federal funding agency, and a member of public policy advocacy groups. DFD is well respected and positioned to provide advocacy for federal funding for research and education in fluid dynamics. As a member of the Executive Committee, I will work with the DFD leadership to effectively advocate for and serve the fluid dynamics community.



## IN MEMORIAM

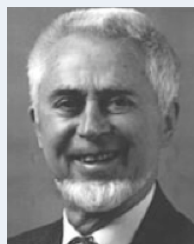


**Isaac Goldhirsch**  
1949 – 2010

Professor Isaac Goldhirsch, the Raquel and Manuel Klachky Chair of Rheological Flows at the School of Mechanical Engineering of Tel-Aviv University, Israel, died unexpectedly on April 29, 2010 at age 60 while on sabbatical leave at the University of Erlangen-Nuremberg, Germany. Goldhirsch made important contributions to Statistical Mechanics, Solid State Physics, Fluid Mechanics, Granular Physics, and Applied Mathematics. He served as an Associate Editor of the Journal of Fluid Mechanics, as a founding Editor of Granular Matter, and was on the editorial board of the Journal of Scientific Computing. He was one of the two Israeli members of the General Assembly for the International Union of Theoretical and Applied Mechanics (IUTAM). He was a devoted husband to Rivka and father of two adult daughters, Adi and Netta.

Isaac Goldhirsch was born in 1949 in Romania. His undergraduate degree with special distinction was from the Hebrew University of Jerusalem in Physics and Mathematics; he received his M. Sc. and Ph.D. from the Weizmann Institute in 1980 in Physics and Chemical Physics, where he won the Feinberg Graduate School's Kennedy Prize. He then spent two important years as a Post-Doctoral Associate with Irwin Oppenheim at the Massachusetts Institute of Technology. Following that, Isaac joined Tel-Aviv University, where he rose through the ranks to hold the Raquel and Manuel Klachky Chair of Rheological Flows.

In his seminal studies of granular materials, Goldhirsch provided the basic theory for inelastic kinetic systems, numerical examples of clustering instabilities and an explanation of their origin. These activities have all had critical impact on the understanding of the behavior of the physics of the granular state and its differences from the more classical elastic kinetic systems. An influential summary of his views on dilute granular systems is given in his 2003 Annual Review of Fluid Mechanics article. He also wrote influential reviews and research articles on coarse graining of condensed matter, convection, chaotic dynamics, and asymptotic and numerical methods, and made core contributions to studies of dense granular systems, thermophoresis, random walks on networks, accelerated molecular dynamics, stability of fluids, and lattice methods for fluids.



**Milton Van Dyke**  
1922 – 2010

Milton Van Dyke, a professor emeritus of Mechanical Engineering and of Aeronautics and Astronautics at Stanford University, and a major contributor to the field of fluid mechanics, died of complications from Parkinson's disease on May 10, 2010. He was 87. Van Dyke co-founded the Annual Review of Fluid Mechanics in 1968, editing the journal until 2000, and in 1982 published An Album of Fluid Motion, a collection of hundreds of images from the field of fluid mechanics, and produced through his own publishing company, Parabolic Press. An Album of Fluid Motion is currently in its 12th edition. An active member of the APS/DFD, Van Dyke was the recipient of the 1986 Otto Laporte Award. Van Dyke is survived by his wife of 48 years, Sylvia; his sons Russell, Eric, Christopher, Brooke and Byron; his daughter, Nina; and nine grandchildren.

Born in Chicago in 1922, Van Dyke grew up in a series of small towns in the West and Midwest. He was awarded one of two National Scholarships from Harvard University for his undergraduate studies. He studied engineering sciences there, and graduated in three years summa cum laude and Phi Beta Kappa. As soon as he graduated, with World War II in full swing, Van Dyke was recruited by the National Advisory Committee for Aeronautics (NACA, which later became NASA) to work at Ames Laboratory, a new site at the Moffett Field Naval Air Station near Mountain View, Calif. While at NACA, Van Dyke made important contributions to the understanding of airplane wing design and compressible flow. After the war, Van Dyke won a National Research Council scholarship to study aeronautics and applied mathematics at Caltech. He enrolled in 1946, and received his M.S. and Ph.D. degrees by 1949. He returned to the Ames Laboratory in 1950, making major contributions to the theory of supersonic flow. The Van Dyke-Gordon algorithm for reentry systems was published as the very first NASA Technical Report in 1959.

In 1959, Van Dyke received an offer to join the Stanford faculty as a full professor to help build the new aeronautics department. During his time at Stanford, Van Dyke became well known as a teacher and author, particularly in the area of perturbation methods in fluid mechanics. He taught a popular course on the subject, and also wrote Perturbation Methods in Fluid Mechanics, first published in 1964, which remains a standard reference work in the field. As an adviser to over 30 Ph.D. students, Van Dyke was known for the care and attention paid to each of them. One of his former graduate students, Leonard Schwartz, noted that Van Dyke's personal contribution to his graduate students' work was quite substantial but consistently downplayed. He was never listed as a co-author when student dissertation work was published.

Van Dyke retired from his faculty position at Stanford in 1992. He lived on the Stanford campus until his death. A memorial service was held on September 19, 2010 at the Stanford Faculty Club.

# APS/DFD 2009-2010 Leadership & Contact Information

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

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