

A Division of the American Physical Society

THE 65TH ANNUAL DFD MEETING

San Diego, California November 18–20, 2012



The coastal community of La Jolla is home to the UCSD campus.

The 65th Annual Meeting of the American Physical Society's Division of Fluid Dynamics (DFD) will be held in San Diego, California, from Sunday, November 18 to Tuesday, November 20, 2012. The meeting will be hosted by the University of California, San Diego, with participation of the University of San Diego and San Diego State University.

Meeting Venue

The meeting will be held at the San Diego Convention Center (SDCC) located next to the San Diego Marriott Marquis and Marina Hotel and within easy walking distance from several downtown and harbor-side hotels. All events, including plenary talks and reception, will take place on the Upper Level of the SDCC.

San Diego

San Diego is a vibrant coastal city at the southern-most border of California. As a result of its ideal geographic location, San Diego is a gateway for global interactions. The city is home to telecommunications industry leader Qualcomm as well as leading-edge biotechnology start-ups. The highly-ranked University of California is located in the coastal community of La Jolla and is easily reached by freeway in 15-20 minutes from downtown San Diego. The meeting

facilities and hotel overlook San Diego Bay, are within a five-minute drive of the airport and within walking distance to the historic Gaslamp Quarter where you will find entertainment and dining. San Diego is an activity-oriented city where you can golf, surf, bike, hike, sail, or enjoy a walk through Balboa Park or the harbor-side. Seaport Village, with its many shops and restaurants, is adjacent to the meeting and hotel site, as is the USS Midway Museum.

Housing and Meeting Registration

Registration for the meeting and housing information are available through the meeting web site <http://www.apsd2012.ucsd.edu> (also accessible from <http://www.aps.org/units/dfd/meetings/>). Links to registration and the conference hotel (San Diego Marriott Marquis & Marina) are provided together with instructions on how to make reservations at the discounted conference rate (\$169). Participants are urged to book their stay as early as possible. Rooms can be reserved at the reduced rate, as long as space is available, or until October 17th.

Key Dates and Registration fees:

Registration opens in mid-June, check <http://www.apsd2012.ucsd.edu>

IN THIS ISSUE

- 1 65th Annual DFD Meeting: San Diego, CA
- 3 Call for Candidates for APS/DFD Officers and Executive Committees
- 3 2011 APS/DFD Prizes, Awards, New Fellows and Gallery Winners
- 7 Highlights of the 64th Annual DFD Meeting in Baltimore, MD
- 8 APS/DFD 2011-12 Officers

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.

	Early (thru 9/16)	Regular (9/17–10/21)	Late & On-Site (10/22–11/18)
APS Member	\$390	\$460	\$540
Non-APS Member	\$645	\$705	\$785
Undergraduate Student	\$40	\$40	\$75
Graduate Student	\$190	\$212	\$295
Retired	\$190	\$212	\$295
Minisymposia	\$200		

Cancellation deadline (no refunds after this date):
November 7

Deadline for abstract submission
August 3

Deadline for applications for financial support
August 5

**Notice of intent to submit poster or video entries
for the Gallery of Fluid Motion**
September 16

Video submission deadline:
October 10

Scientific Program

The scientific program will include four award lectures, eight invited lectures, minisymposia and focused sessions, contributed papers, poster sessions, exhibits and the Gallery of Fluid Motion poster and video entries. Over 2200 contributed abstracts, divided into up to 30 concurrent sessions, are anticipated.

Awards Program

Each year the APS Division of Fluid Dynamics presents the Fluid Dynamics Prize, the Francois Frenkiel Award, the Andreas Acrivos Dissertation Award, and the recently instituted Stanley Corrsin Award. The 2012 award winners, each one of whom will give a lecture at the meeting, will be announced in the Fall.

Invited Lectures, Minisymposia, and Focused 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 minisymposia and focus sessions dealing with exciting current research. The topics may also include fluid dynamics education, international

research, and tutorials/reviews. The specific minisymposia/focused sessions and speakers will be announced on the conference web site closer to the meeting.

Gallery of Fluid Motion

The 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. Please see the meeting web site for information on how to submit Gallery of Fluid Motion entries.

Posters

The number of poster research contributions to the Annual DFD Meeting has doubled in the past three years (from 27 posters in 2009 to 54 posters in 2011). In order to better showcase this growing section, the 65th Annual DFD Meeting will launch the first **Student Poster Competition**. The poster session will be held during a dedicated time slot prior to the 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.

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 Upper Level of the SDCC. Sponsorship opportunities are listed on the meeting website www.apsdfd2012.ucsd.edu. For more information on exhibits or sponsorship, please contact Professor Juan C. Lasheras, jlasheras@ucsd.edu, or Harriet Kounaves, Planned Meeting Consultants at planmeetconsult@gmail.com.

Conference Reception

The Conference Reception will be held in the Sails Pavilion on the Upper Level of the San Diego Convention Center on Sunday evening, November 18, 2012. The reception is included in the registration fee for those who register as APS Members, non-members, graduate students and retired members. Additional tickets may be purchased for \$80 each.

Registration

Nick Taylor
Orchid Events Solution
nick@orchideventsolutions.com

Meeting Hosts

Hosted by the University of California, San Diego

with participation from:
San Diego State University
University of San Diego

Meeting Chair

Professor Juan C. Lasheras, UC San Diego
jlasheras@eng.ucsd.edu

Meeting Information**Planned Meeting Consultants**

Harriet Kounaves
Francesco Carusi
planmeetconsult@gmail.com

2012 Meeting Website

<http://www.apsdfd2012.ucsd.edu>

Future APS/DFD Meetings:**2013 Pittsburgh, PA**

Prof. Nadine Aubry, Co-Meeting Chair
Carnegie Mellon University
Peyman Givi, Co-Meeting Chair
University of Pittsburgh

2014 San Francisco, CA

Prof Sanjiva Lele, Meeting Chair
Stanford University

Call for APS/DFD Officers and Executive Committee Candidates

The Nominating Committee of the APS Division of Fluid Dynamics invites suggestions for candidates for Vice-Chair, Secretary/Treasurer, and two Member-at-Large positions for the Executive Committee of the DFD.

Officers and Members-at-Large of the Executive Committee must be members of the Division for at least two years prior to nomination. Nominees for Vice Chair should be APS Fellows because one of the duties of the Vice Chair is to serve on the Fellowship committee.

The member elected as Vice-Chair shall serve in that office for one year, then for one year as Chair-Elect, then for one year as Chair of the Division and Executive Committee, and finally, one year as Past Chair.

The Secretary/Treasurer and the Members-at-Large of the Executive Committee serve for three years.

More information on these positions can be found at the governance section of the APS DFD website: <http://units.aps.org/units/dfd>.

The Nominating Committee will select two nominees for each position.

Please send the names of potential candidates to Ellen Longmire, Chair of the DFD Nominating Committee, by June 22, 2012. Please use "DFD Nomination" in the subject line.

Ellen Longmire
Aerospace Engineering & Mechanics
University of Minnesota
107 Akerman Hall
110 Union St, SE
Minneapolis, MN 55455
612-626-7853 (voice)
612-626-1558 (fax)
longmire@aem.umn.edu

APS/DFD 2011 Awards, Prizes, New Fellows, and Gallery Winners

**2011 Fluid Dynamics Prize**

Tony Maxworthy of the University of Southern California was the recipient of the 2011 Fluid Dynamics Prize that recognizes major contributions to fundamental fluid dynamics made during a career of outstanding work. The citation reads: *"For outstanding and sustained contributions to fluid dynamics, elucidating stability of fluid interfaces, vortex dynamics, insect flight and, notably, to geophysical and environmental fluid dynamics, including stratified and rotating flow phenomena, gravity currents, and convective processes."*



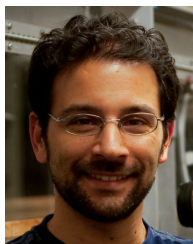
2011 Stanley Corrsin Award

Charles Meneveau of the Johns Hopkins University was the recipient of the 2011 newly established Stanley Corrsin Award that recognizes a particularly influential contribution to fundamental fluid dynamics. The citation reads: *"For his innovative use of experimental data and turbulence theory in the development of advanced models for large-eddy simulations, and for the application of these models to environmental, geophysical and engineering applications."*



2011 Andreas Acrivos Dissertation Award

Paolo Luzzatto-Fegiz, now at the Woods Hole Oceanographic Institution, received the Andreas Acrivos Dissertation Award for his thesis entitled "Equilibrium and stability in vortex and wave flows". The award recognizes an exceptional young scientist for original, outstanding doctoral thesis work in fluid dynamics done in the United States. The citation reads: *"For developing novel theoretical and numerical techniques to study equilibrium and stability in conservative flows, thereby addressing some longstanding difficulties concerning vortex and wave flows."* Dr. Luzzatto-Fegiz did his doctoral thesis work at Cornell under the direction of Prof. Charles H.K. Williamson.



2011 Francois Frenkiel Award

R. Mejia-Alvarez and K.T. Christensen of the University of Illinois at Urbana-Champaign were the recipients of the François Frenkiel Award for their paper entitled: "Low-order representations of irregular surface roughness and their impact on a turbulent boundary layer", *Physics of Fluids* 22, 015106 (2010). The award recognizes significant contributions to fluid mechanics that have been published in the *Physics of Fluids* during the preceding year by young investigators. The motivation for the award reads: *"The paper was commended for its novel use of manufactured wall surface roughness models to elucidate the effect of roughness scales on the behavior of rough-wall boundary layers in developing and developed-flow conditions"*.



New APS/DFD Fellows

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



Niklolaus Adams

Technical University of Munich
"For the development of novel numerical methods for Computational Fluid Dynamics, and for their successful application to elucidate the dynamics of turbulent boundary layers and shock-turbulence interactions."



Henrik Bruus

Technical University of Denmark
"For contributions to microfluidics including innovative research in lab-on-a-chip systems, electrohydrodynamics, and acoustics, and as the author of a leading textbook on theoretical microfluidics."



Min Chong

University of Melbourne

“For contributions to the development of series-expansion approaches to the Navier-Stokes equations to the use of topology in the study of flow patterns in turbulence, and to our understanding of the structure of jets, wakes, wall turbulence and hot-wire anemometry.”



Marie Farge

Ecole Normale Supérieure

“For pioneering research applying wavelets to the analysis and computation of turbulent flows in two and three dimensions.”



Jon Freund

University of Illinois,
Champaign-Urbana

“For his pioneering and incisive numerical simulation studies of atomic-scale and biological flows, free shear flow turbulence, and jet aeroacoustics.”



Sandip Ghosal

Northwestern University

“For insightful mathematical models of multi-physics and multi-scale fluid flow phenomena.”



Mike Graham

University of Wisconsin

“For diverse contributions to the understanding of complex fluids, including the flow of polymer solutions in confined geometries, the nonlinear dynamics of viscoelastic flows at low and high Reynolds numbers, and the collective dynamics of swimming microorganisms.”



Fernando Grinstein

Los Alamos National Laboratory

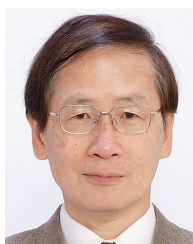
“For outstanding technical leadership in the formalization, development, and validation of novel large-eddy simulation strategies, and for their application to transitional and turbulent flows.”



Howard Hu

University of Pennsylvania

“For pioneering contributions to the understanding of multiphase flows, particularly the direct numerical simulation of Newtonian and viscoelastic particulate flows.”



Yukio Kaneda

Nagoya University

“For seminal achievements in the understanding of high Reynolds number turbulence, especially through pioneering the conduct of direct numerical simulations at massive scale, and for international leadership in the turbulence and computational science communities.”



Joe Klewicki

University of New Hampshire

“For insightful studies revealing the properties and scaling of turbulent boundary layers over a large Reynolds number range, and for developing and sharing with the research community unique flow facilities to carry out such studies.”



Krishnan Mahesh

University of Minnesota

“For the development of novel numerical algorithms and creative physical insights leading to enhanced understanding of complex turbulent flows, including shock/turbulence interactions, jets in cross flow, reacting flows, and multiphase flows.”



Constantine Megaridis

University of Illinois, Chicago

“For pioneering the development of thermophoretic sampling, as well as contributions to the fluid dynamics of droplet impact and the behavior of fluids in nanoenclosures.”



Rajat Mittal

Johns Hopkins University

“For fundamental contributions to the development of immersed boundary methods in computational fluid dynamics and for the understanding of the structure of bluff body wakes, fluid dynamics of locomotion, active flow control, and biomimetic & bioinspired engineering”



Peter Schmid

Ecole Polytechnique

“For profound contributions to non-modal stability theory which have elucidated the mechanisms responsible for by-pass transition in shear flows. For the development of powerful methods capable of extracting the dominant dynamic modes and reduced-order models from experimental and numerical data.”



Lian-Ping Wang

University of Delaware

“For pioneering contributions to the understanding of turbulent flows and turbulent particle-laden flows, relevant to fine-scale dynamic similarity, turbulent dispersion, settling rate, preferential concentration, collision rate and collision efficiency of inertial particles.”

The 2011 Gallery of Fluid Motion and the Milton Van Dyke Award Winners

As has long been our tradition, the best poster and best videos were chosen from amongst the entries at the 2011 DFD meeting in Baltimore. The top three from each category were awarded the Milton Van Dyke Award for fluid flow visualization.

Milton Van Dyke Award Winners (Poster)

Splash control of drop impacts using small geometric targets

Gabriel Juarez; Thomai Gastopoulos; Yibin Zhang; Michael L. Siegel; Paulo E. Arratia, Philadelphia, PA

Direct numerical simulation of stratified turbulence

Georgios Matheou, Jet Propulsion Laboratory; Daniel Chung

Division by fluid incision: biofilm patch developments in porous media

William M. Durham; Olivier Tranzer; Alberto Leombruni; Roman Stocker, MIT

Milton Van Dyke Award Winners (Video)

Freezing singularities in water drops

Oscar Enriquez, University of Twente; Alvaro G. Marin; Koen Winkels; Jacco Snoeijer

Holy balls!

Michael Wright; Ken Langley; Jesse Belden; Tadd Truscott, Brigham Young University

Fundamental and subharmonic transition to turbulence in zero-pressure-gradient flat-plate boundary layers

Taraneh Sayadi; Curtis Hamman; Parviz Moin, Stanford University

Gallery of Fluid Motion Award Winners (Poster)

Bag instabilities

Barry E. Scharfman, Cambridge, MA; Alexandra H. Techet

The imploding water wave: a flowing blossom

Anna Shchetinina; Hoi Dick Ng, Concordia University

Gallery of Fluid Motion Award Winners (Video)

Bubble oscillations and motion under vibration

Tim O’Hern, Sandia National Laboratories; Bion Shelden, John Torczynski

Particle jet formation during explosive dispersal of solid particles

Dave Frost, McGill University; Yann Gregoire, Oren Petel; Sam Goroshin; Fan Zhang

Vortex formation and instability in the left ventricle

Trung Le; Fotis Sotiropoulos, Saint Anthony Falls Laboratory

Floating extensional flows

Roy Sayag, University of Cambridge; Samuel S. Pegler, M. Grae Worster

Highlights of the 64th Annual DFD Meeting in Baltimore, Maryland

The 2011 DFD meeting was held in November at the Baltimore Convention Center in Baltimore, Maryland.

This meeting was the largest in DFD history, with 2022 submitted abstracts, including 31 invited presentations, 1943 Oral presentations, 43 Poster contributions and participation from 44 different countries.

In addition to the contributed abstracts, there were twelve invited lectures:

Tony Maxworthy, the winner of the 2011 Fluid Dynamics prize, gave the Otto Laporte lecture: *A Fascination with Fluids: Vortices and Vortex Breakdown*

Charles Meneveau, gave the Stanley Corrsin lecture: *Big and small swirls in the maze: Modeling turbulence in Large Eddy Simulations*

Paolo Luzzatto-Fegiz, Woods Hole Oceanographic Institution, gave the Andreas Acrivos Dissertation Award Lecture: *“Equilibrium and stability in vortex and wave flows.”*

K.T. Christensen and R. Mejia-Alvare, University of Illinois at Urbana-Champaign, gave the Francois Frenkiel Award Lecture: *“Low-Order Representations of Irregular Surface Roughness and Their Impact on a Turbulent Boundary Layer.”*

Isabelle Cantat, Institut de Physique de Rennes, France, *Foam Flow and Liquid Films Motion: Role of the Surfactants Properties*

Frank E. Fish, Department of Biology, West Chester University, *Biomimetics and Tubercles on Flippers for Hydrodynamic Flow Control*

Julian Hunt, UCL (UK), Trinity College Cambridge (UK), and TU Delft (The Netherlands), *Fluid Mechanics and Public Policy Including Natural Disasters and Climate Change*

Neelesh Patankar, Northwestern University, *Roughness-Based Superhydrophobic Surfaces: Fundamentals and Future Directions*

Beverly McKeon, California Institute of Technology, *Experimental Manipulation of Wall-Bounded Turbulence*

Gretar Tryggvason, University of Notre Dame, *DNS and Multi-Scale Modeling of Multi-Phase Flows*

Mark Robbins, Johns Hopkins University, *Capillary Phenomena at Nanoscales: Electrowetting and Capillary Adhesion*

Emmanuel Villermaux, Aix-Marseille Université, France, *Three Little Stories on Fragmentation and Mixing*

There were three Minisymposia:

Electrokinetic flows about ion-selective surfaces

Cardiac fluid dynamics: translating fundamental insights into clinical practice

The fluid dynamics of geological CO₂ sequestration

There were three Focus Sessions:

Wind energy fluid dynamics

PIV uncertainty

Evaporative self-assembly of micro- and nano-particles

Lastly, there workshops on fluids education, a panel discussion on research funding and a lunch in which students could meet in small groups with professors representing every corner of the Fluid Dynamics spectrum and talk about research and careers.

APS/DFD 2011-2012 Leadership & Contact Information

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

EXECUTIVE COMMITTEE

Chair

Kenny Breuer
(11/11–10/12)
Brown University

Chair-Elect

James Riley
(11/11–10/12)
University of Washington

Vice Chair

Nadine Aubry
(11/11–10/12)
Carnegie Mellon University

Past Chair

Ann Karagozian
(11/11–10/12)
*University of California-
Los Angeles*

Secretary/Treasurer

Eckart Meiburg
(11/09–10/12)
*University of California-
Santa Barbara*

Councillor

James Wallace
(01/11–12/14)
*University of Maryland-
College Park*

Member-at-Large

Timothy Colonius
(11/09–10/12)
Cal Inst of Tech (Caltech)

Member-at-Large

Elisabeth Guazzelli
(11/09–10/12)
CNRS Paris

Member-at-Large

James Duncan
(11/10–10/13)
*University of Maryland-
College Park*

Member-at-Large

Michael Plesniak
(11/10–10/13)
*George Washington
University*

Member-at-Large

Sanjiva Lele
(11/11–10/14)
Stanford University

Member-at-Large

Detlef Lohse
(11/11–10/14)
University of Twente

NOMINATING COMMITTEE

8 MEMBERS, STAGGERED
2-YEAR TERMS

Ellen Longmire

(12/12)
Chair

Arne Perlstein

(12/13)
Vice Chair

Lance Collins

(12/12)

David Dowling

(12/12)

Joseph Powers

(12/12)

Kathleen Stebe

(12/12)

Mike Plesniak

(12/13)

Peter Schmid

(12/13)

PROGRAM COMMITTEE

8 MEMBERS, STAGGERED
3-YEAR TERMS

Nadine Aubry

(12/13)

Chair

James Riley

(12/12)

Vice Chair

Andrew Belmonte

(12/14)

Dan Bodony

(12/14)

Eric Lauga

(12/14)

Krishnan Mahesh

(12/12)

Sutanu Sarkar

(12/12)

Wendy Zhang

(12/13)

Ex-officio:

Juan Lasheras
(12/12)

FELLOWSHIP COMMITTEE

8 FELLOWS, STAGGERED
2-YEAR TERMS

James Riley

(12/12)

Chair

Nadine Aubry

(12/13)

Vice Chair

Haecheon Choi

(12/13)

Manoochehr

Koochesfahani
(12/12)

Richard Lueptow

(12/12)

Yuriko Renardy

(12/12)

Geoff Spedding

(12/13)

Laurette Tuckerman

(12/12)

EXTERNAL AFFAIRS COMMITTEE

8 MEMBERS, STAGGERED
3-YEAR TERMS

Aline Cotel

(12/12)

Chair

Alexandra Techet

(12/13)

Vice Chair

Alberto Aliseda

(12/12)

Tom Bewley

(12/12)

Charlie Henoeh

(12/14)

Charles Meneveau

(12/13)

David Santillian

(12/14)

Larry Ukeiley

(12/14)

FLUID DYNAMICS PRIZE SELECTION COMMITTEE

8 MEMBERS, STAGGERED
2-YEAR TERMS

Tom Corke

(12/12)

Chair

Neelesh Patanker

(12/13)

Vice Chair

Henrik Alfredsson

(12/13)

Julian Andrzej

Domaradski
(12/12)

Elisabeth Guazzelli

(12/12)

Pirouz Kavehpour

(12/13)

Tony Maxworthy

(12/12)

Serving a one year term as
recipient of prize in 2011

Sandra Troian

(12/12)

CORRSIN AWARD SELECTION COMMITTEE

8 MEMBERS, STAGGERED
2-YEAR TERMS

Martin Maxey

(12/12)

Chair

Gretar Tryggvason

(12/13)

Vice Chair

Mark Glauser

(12/13)

Philip Marcus

(12/12)

Charles Meneveau

(12/12)

Serving a one year term as
recipient of prize in 2011

Elaine Oran

(12/12)

Roman Stocker

(12/13)

Jane Wang

(12/13)

ACRIVOS AWARD SELECTION COMMITTEE

7 MEMBERS, STAGGERED
2-YEAR TERMS

Shelley Anna

(12/12)

Chair

Jonathan Rothstein

(12/13)

Vice Chair

Miki Amitay

(12/13)

Jacob Cohen

(12/13)

Lisa Fauci

(12/13)

Jeffrey Jacobs

(12/12)

John Torczynski

(12/12)

FRENKIEL AWARD SELECTION COMMITTEE

7 MEMBERS, STAGGERED
2-YEAR TERMS

P.-K. Yeung

(12/12)

Chair

Ali Beskok

(12/13)

Vice Chair

Triantaphyllos Akylas

(12/12)

Ken Christiansen

(12/13)

Ching-Long Lin

(12/12)

Helen Reed

(12/13)

Michael Shelley

(12/12)

AE from POF

AD HOC COMMITTEE ON MEDIA & SCIENCE RELATIONS

5 MEMBERS, STAGGERED
2-YEAR TERMS

Anette (Peko) Hosoi

(12/12)

Chair

William Schultz

(12/13)

Vice Chair

James Brasseur

(12/12)

Timothy Wei

(12/12)

Rajat Mittal

(12/13)

AD HOC COMMITTEE ON EDUCATIONAL & CAREER OUTREACH

6 MEMBERS, STAGGERED
2-YEAR TERMS

Karen Flack

(12/12)

Chair

Jean Hertzberg

(12/13)

Vice Chair

Meredith Metzger

(12/12)

Andrew Pollard

(12/13)

Kathy Prestridge

(12/12)

Patrick Underhill

(12/13)

DIVISION WEBSITE DEVELOPMENT OFFICER

Jeff Eldredge

GALLERY OF FLUID MOTION COORDINATOR

Ken Kiger