

FALL 2005

Division of Fluid Dynamics Newsletter

# DFD News

A Division of The American Physical Society

## RECIPIENTS OF PRIZES AND AWARDS

Each year the APS Division of Fluid Dynamics recognizes outstanding individuals with several awards: the Fluid Dynamics Prize, The Francois Frenkiel Award, and the Andreas Acrivos Dissertation Award.

### 2005 Fluid Dynamics Prize

Ronald J. Adrian of Arizona State University is the recipient of the 2005 Fluid Dynamics Prize, which is awarded for outstanding contributions to fundamental fluid dynamics research. The citation reads: For his advancement of experimental techniques and their integration into experiments that have led to new insight into complex flows. Professor Adrian will present the 2005 Otto Laporte Lecture at the 2005 Division of Fluid Dynamics Meeting in Chicago.

The Fluid Dynamics Prize was established in 1979 with support from the Office of Naval Research. In 2004 the Executive Committee of the Division voted to combine the Otto Laporte Award with the Fluid Dynamics Prize so that the Division of Fluid Dynamics would have a single major prize -- the Fluid Dynamics Prize. The prize was endowed by the Division of Fluid Dynamics, friends of Otto Laporte and the American Institute of Physics journal: *Physics of Fluids*.

This past spring, the DFD Executive Committee decided unanimously to call the lecture given by the Fluid Dynamics Prize recipient The Otto Laporte Lecture. The rationale for this decision is to continue to honor the memory of one of the DFD's founding members, as was intended by those who originally funded the lectureship in his name, and to honor the many distinguished colleagues who were the Otto Laporte Lecturers in the earlier years of the Division and the Otto Laporte Awardees after the lecture was made

an APS Award in 1985. A short biography of Otto Laporte, a list of the Otto Laporte Award recipients and lecturers, and a list of Fluid Dynamics Prize recipients are given later in this Newsletter.

### 2005 FRANCOIS FRENKIEL AWARD

Roberto Verzicco of Politecnico di Bari, Italy, is the recipient of the 2005 Francois Frenkiel Award, which recognizes significant contributions to fluid mechanics that have been published in *Physics of Fluids* during the preceding year by young investigators. The award paper is titled: Effects of nonperfect thermal sources in turbulent thermal convection [*Phys Fluids* 16, 1965 (2004)]. The citation reads: For judicious use of numerical simulations to resolve apparent discrepancies in experimental studies of the scaling behavior of high Rayleigh number convection by clarifying the dynamic role of the boundaries in heat transfer.

### 2005 ANDREAS ACRIVOS DISSERTATION AWARD

Silas D. Alben of Harvard University is the recipient of the 2005 Andreas Acrivos Dissertation Award for his thesis entitled "Drag Reduction by Self-Similar Bending and a Transition to Forward Flight by a Symmetry-Breaking Instability." 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 elegant mathematical and numerical analysis of fluid-structure interaction to elucidate deformation-induced drag reduction of flexible membranes in a wind and induction of forward flight by the symmetry-breaking flapping of wings. Dr. Alben did his doctoral thesis work at New York University under the direction of Michael J. Shelley.

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## PRIZE, AWARD AND FELLOWSHIP NOMINATIONS FOR 2006

For information about the nomination process and requirements, please see the announcements posted at [www.aps.org](http://www.aps.org).

## APS/DFD ELECTIONS

The election of officers to the Executive Committee of the APS/DFD will take place shortly. Every APS/DFD member whose e-mail address is in the APS membership record will receive (or may have received already) an e-mail request to vote. A reminder will also be sent electronically. Those members whose e-mail address is unknown will receive a paper ballot. This year the vacancies and the slate of candidates selected by the Nominating Committee are:

**Vice-Chair:** The Vice-Chair will serve in this capacity in 2005-2006, then as Chair-Elect in 2006-2007, as the Division Chair in 2007-2008, and finally as Past-Chair in 2008-2009.

The two candidates nominated for this position are:

- Elaine S. Oran, Naval Research Laboratory
- Alexander J. Smits, Princeton University

**Members-at-Large:** Members-at-Large serve on the Executive Committee for three-year terms. The four candidates nominated for the two vacant positions are:

- Jean-Marc Chomaz, École Polytechnique, Paris
- Constantine Pozrikidis, University of California, San Diego
- Paul Steen, Cornell University
- Minami Yoda, Georgia Institute of Technology

Biographical information and statements from the candidates will be posted on the web.

## THE 58TH ANNUAL DFD MEETING CHICAGO, ILLINOIS, NOVEMBER 20-22, 2005

### MEETING VENUE

The 58th Annual DFD Meeting will be hosted by the Illinois Institute of Technology, Northwestern University, and the University of Illinois at Urbana-Champaign. The meeting will be held at the Hilton Chicago, a historic grand hotel located on South Michigan Avenue overlooking Grant Park and Lake Michigan. The hotel is within easy walking distance of the Chicago Loop, Lake Michigan, Symphony Hall, the Chicago Art Institute, the Magnificent Mile, the Sears Tower, the exciting new Millennium Park, and the Chicago Museum Campus including the Field Museum of Natural History, where the conference reception will be held. Chicago provides wonderful cultural and leisure attractions: spectacular shopping, incredible dining, internationally renowned museums, exciting nightlife, jazz, blues, and much more, all set on beautiful Lake Michigan.

### CONFERENCE WEBSITE

<http://www.dfd2005.northwestern.edu/> (or <http://www.aps.iit.edu/>)

### HOTEL RESERVATIONS

The recently renovated Hilton Chicago Hotel overlooks Grant Park and Lake Michigan and is in the heart of Chicago's cultural core. The Hilton Chicago offers richly appointed rooms with spectacular views of Lake Michigan as well as amenities including internet access, a full business center, a state-of-the-art athletic club, and diverse dining options. Many double rooms include two beds and two baths accommodating up to four persons. For reservations, see "Housing & Travel" on the Conference Website or contact the hotel directly at:

- Hilton Chicago  
720 South Michigan Avenue  
Chicago, IL 60605  
Tel: 1-800-HILTONS or 1-312-922-4400  
(*identify yourself as a DFD attendee*)  
Fax: 1-312-663-6538



Website: <http://www.hilton.com/en/hi/hotels/index.jhtml?ctyhocn=CHICHHH>

(Group/Convention Code: DFD)

Rates: (for reservations prior to 11 October 2005)

\$145 single plus tax (currently 14.9%)

\$175 double plus tax (currently 14.9%)

\$25 per additional person

### CONFERENCE REGISTRATION

Registration includes all sessions, coffee breaks, one set of conference materials, and one ticket to Sunday's reception at the Field Museum of Natural History. Early registration at lower rates is available until October 21, 2005. Registration fees are \$300 for members (\$360 late), \$520 for non-members (\$570 late), and \$145 for graduate students (ID required) and retired members (\$175 late). Extra tickets for Sunday's reception are \$75. Registration forms are available on the conference web site. There are three ways to register prior to November 11, 2005:

- **via MAIL**

APS/DFD Chicago 2005  
c/o Engineering Professional Programs  
10303 Meridian Ave N, Suite 301  
Seattle, WA 98133

- **via FAX**

206-543-2352

- **via INTERNET**

<https://www.engr.washington.edu/epp/dfd/registration.html>

After November 11, 2005, only on-site registration will be accepted. The registration desk will be open on Saturday evening, November 19, 2005, at the Hilton Chicago for on-site registration and to pick up conference materials. For registration questions, contact the registration organization for the Chicago DFD Meeting: University of Washington Engineering Professional Programs, Tel.: 1-866-791-1275, Email: [uw-epp@engr.washington.edu](mailto:uw-epp@engr.washington.edu).

### SCIENTIFIC PROGRAM

This year's scientific program will include three award lectures, eight invited lectures, five mini-symposia, contributed papers, poster sessions, exhibits, and the Gallery of Fluid Motion. More than 1400 contributed abstracts are anticipated.

### AWARDS PROGRAM

Each year the APS Division of Fluid Dynamics presents several awards: the Fluid Dynamics Prize, the Francois Frenkiel Award, and the Andreas Acrivos Dissertation Award. A lecture by each award winner will be given at the meeting.

## MINISYMPOSIA

- *Fluid Transport in Nanotubes and Nanochannels* (organized by Constantine M. Megaridis and Petros Koumoutsakos)
- *Foams: Linking the Mechanics of Fluids and Solids* (organized by Sascha Hilgenfeldt)
- *Japan-US Minisymposium on Bio-Fluid Dynamics* (organized by Maria Oshima and Stanley Berger)
- *Polymer Flow in Capillary and Simple Shear: From Interfacial Slip to Constitutive Discontinuity* (organized by Shi-Qing Wang)
- *Reduced-Order Modeling for Feedback Flow Control* (organized by Dietmar Rempfer and Bernd R. Noack)

## GALLERY OF FLUID MOTION

The 23rd Annual Gallery of Fluid Motion will be held as part of the Meeting. The Gallery consists of aesthetically pleasing, insightful displays of still pictures, computer graphics, and video clips submitted by attendees. Both computational and experimental fluid dynamics entries are encouraged. Outstanding entries, selected by a panel of referees for originality and ability to convey and exchange information, will be honored during the meeting. Entry forms are available at the conference web site and must be received via email no later than Friday, October 7, 2005. Questions and entry forms should be addressed to Professor Kevin Cassel, Illinois Institute of Technology, *Email: cassel@iit.edu*

## AUDIOVISUAL EQUIPMENT

All rooms will be equipped with a LCD projector, overhead projector, screen, microphone, and pointer. Speakers planning to use the LCD projector must provide their own laptop computer. A Speaker Ready Room will be available for authors to check compatibility with the LCD projection equipment.

## CONFERENCE RECEPTION

A highlight of the meeting will be the Conference Reception on Sunday evening, November 20, 2005. The Reception will be held at the world famous Field Museum of Natural History. All paid attendees receive a ticket to this event. The Field Museum of Natural History was founded to house the biological

and anthropological collections assembled for the World's Columbian Exposition of 1893. The museum is home to many unique exhibits including Sue, the world's largest, most complete, and best preserved *Tyrannosaurus rex*.

## EXHIBITORS

Do not miss this opportunity to reach over 1300 attendees of the APS/DFD Annual Meeting! For more information on exhibiting or sponsorship, contact Meetings And More at (301) 229-1037 or [mtgs911@aol.com](mailto:mtgs911@aol.com).

## DEADLINES

Abstract Submission  
12 August 2005

Gallery Of Fluid Motion Entry Forms  
7 October 2005

Video Entries To Gallery Of Fluid Motion  
7 October 2005

Hotel Reservations (Reduced Rate)  
11 October 2005

Early Registration (Reduced Rate)  
21 October 2005

## MEETING HOSTS

The Illinois Institute of Technology  
Northwestern University  
The University of Illinois at Urbana-Champaign

## ORGANIZERS

Richard M. Lueptow, Lead Organizer  
Northwestern University  
Department of Mechanical Engineering  
Phone: (847)-491-4265  
Email: [r-lueptow@northwestern.edu](mailto:r-lueptow@northwestern.edu)  
Hassan Nagib, Illinois Institute of Technology,  
Co-Organizer  
Robert Moser, University of Texas at Austin,  
Co-Organizer

## GENERAL MEETING & EXHIBITING INFORMATION MEETINGS AND MORE

5257 River Road, PMB 905  
Bethesda, MD 20816  
Tel.: (301) 229-1037  
Fax: (301) 229-0206  
Email: mtgs911@aol.com

## INVITED LECTURES

**Howard Baum**, NIST,  
The Fluid Mechanics of Fires

**Henk Dijkstra**, Colorado State University,  
Stability of the Thermohaline Ocean Circulation

**James Grotberg**, University of Michigan,  
Respiratory Fluid Mechanics

**Elisabeth Guazzelli**, Polytech Marseille,  
Sedimentation of Particles: How Can Such a Simple  
Problem Be so Difficult?

**Nicolas Hadjiconstantinou**, MIT,  
The Limits of Navier-Stokes Theory and Kinetic  
Extensions for Describing Small Scale Gaseous  
Hydrodynamics

**Charles Meneveau**, Johns Hopkins University, On  
the origin of small-scale intermittency in turbulence

**Charles Williamson**, Cornell University,  
New Phenomena in Vortex-Induced Vibrations

**Grae Worster**, University of Cambridge, Dynamics  
of Premelted Liquid Films

As an additional note: Winning entries from this year's DFD Gallery of Fluid motion will be displayed in the APS Topical Group on Statistical and Nonlinear Physics Gallery of Images, at the APS March Meeting in 2006. Winning entries from the GSNP's Gallery of Images at the March Meeting in 2005 will be displayed with the DFD Gallery.

## UPCOMING DFD MEETINGS

### 2006, Tampa, Florida

Contact: Tony Ladd,  
University of Florida

### 2007, Salt Lake City, Utah.

Contact: Pat McMurtry,  
University of Utah

### 2008, San Antonio, Texas.

(Subject to final approval)  
Contact: Sharath Girimaji,  
Texas A&M.

## OTTO LAPORTE LECTURE

As reported above, henceforth the recipient of the Fluid Dynamics Prize will present the Otto Laporte Lecture at the annual DFD meeting. To provide some historical background, there follows a brief biography of Otto Laporte, and a list of the previous recipients of the Fluid Dynamics Prize and of the Otto Laporte Award.

Otto Laporte was born in 1902 in Germany, and was a member of the group of young theoretical physicists who received their training during the mid 1920's under the guidance of Arnold Sommerfeld in Munich. He completed his Ph.D. in 1924 and went to the U.S., where he conducted important theoretical research in atomic spectra. This included discovery of the fundamental principle known among spectroscopists as the "Laporte rule", the first statement of the principle that was later to be known as the conservation of parity. From 1926 onward, he was a member of the faculty in the Physics Department at the University of Michigan. In 1944 he entered the field of fluid dynamics with a paper in which he found an exact solution to the problem of the lift of an airfoil of elliptical outline. His interest in fluid-dynamical problems associated with shocks led him to develop an experimental shock tube program, which produced conditions allowing spectroscopic phenomena to be studied that had previously been

inaccessible. Laporte's later work included cryogenic tube experiments in low-temperature hydrogen gas that clarified quantum effects arising from the existence of the ortho and para forms of hydrogen.

Laporte was one of the charter members of the American Physical Society's (APS) Division of Fluid Dynamics (DFD) and served as its chairman in 1965. He exerted strong influence in directing the attention of physicists to this area of study. His death in 1971 came after his name had been slated for presentation for election to the National Academy of Sciences at the annual meeting in April of the same year. Taking an action it had never before taken, the Academy elected Otto Laporte to membership, posthumously. Soon after his death, in recognition not only of his scholarship but also of his early guidance of the organization, the Division of Fluid Dynamics established the Otto Laporte Memorial Lectureship, to be given at the annual meetings of the Division.

## PREVIOUS RECIPIENTS OF THE OTTO LAPORTE AWARD AND PREVIOUS OTTO LAPORTE MEMORIAL LECTURERS

### OTTO LAPORTE AWARD

2003 Norman J. Zabusky  
 2002 Andrea Prosperetti  
 2001 John Kim  
 2000 Hassan Aref  
 1999 Eli Reshotko  
 1998 David G. Crighton  
 1997 Marvin E. Goldstein  
 1996 Donald Coles  
 1995 Katepalli R. Sreenivasan  
 1994 Philip G. Saffman  
 1993 Robert Kraichnan  
 1992 William C. Reynolds  
 1991 Steven A. Orszag  
 1990 Tony Maxworthy  
 1989 Chia-Shun Yih  
 1988 Akiva M. Yaglom  
 1987 J. Trevor Stuart  
 1986 Milton Van Dyke  
 1985 Hans W. Liepmann

### OTTO LAPORTE MEMORIAL LECTURE

1984 Sir James Lighthill  
 1983 John W. Miles  
 1982 Peter Wegener  
 1981 H. W. Emmons  
 1980 R. Byron Bird  
 1979 Stanley Corrsin  
 1978 Cecil E. Leith, Jr.  
 1977 Y. C. Fung  
 1976 George F. Carrier  
 1975 Russell J. Donnelly  
 1974 J. M. Burgers  
 1973 Chia Chiao Lin  
 1972 Richard G. Fowler

## PREVIOUS RECIPIENTS OF THE FLUID DYNAMICS PRIZE

### Fluid Dynamics Prize

2004 George (Bud) Homsy  
 2003 Jerry Gollub  
 2002 Gary Leal  
 2001 Howard Brenner  
 2000 Friedrich H. Busse  
 1999 Daniel D. Joseph  
 1998 Fazle Hussain  
 1997 Louis N. Howard  
 1996 Parviz Moin  
 1995 Harry L. Swinney  
 1994 Stephen H. Davis  
 1993 Theodore Yao-tsu Wu  
 1992 William R. Sears

1991 Andreas Acrivos  
 1990 John L. Lumley  
 1989 William W. Willmarth  
 1988 Galen B. Schubauer  
 1987 Anatol Roshko  
 1986 Robert T. Jones  
 1985 Chia-Shun Yih  
 1984 George Carrier  
 1983 Stanley Corrsin  
 1982 Howard W. Emmons  
 1981 Philip S. Klebanoff  
 1980 Hans Wolfgang Liepmann  
 1979 Chia Chiao Lin

### SOME UPCOMING MEETINGS IN FLUID DYNAMICS

#### The Sixth International Symposium on Particle Image Velocimetry Conference (PIVO5)

September 21-23, 2005  
 California Institute of Technology, Pasadena, CA  
 Website: [www.piv05.caltech.edu](http://www.piv05.caltech.edu)

#### 58th Annual Meeting of the Division of Fluid Dynamics

November 20-22, 2005  
 Hilton Chicago, Chicago, IL

#### IUTAM Symposium on Interactions for Dispersed Systems in Newtonian and Viscoelastic Fluids

March 26-31, 2006  
 D.F. 04510 Mexico, Mexico  
 Symposium Chairman: Prof. G.M. (George) Homsy

#### 15th U.S. National Congress of Theoretical and Applied Mechanics

June 25-30, 2006  
 Boulder, CO  
 Abstract deadline: January 15, 2006  
 Congress co-chairs: Thomas Geers and Stein Sture  
 Website: <http://usnctam06.colorado.edu>

#### Euromech Fluid Mechanics Conference 6 (EFMC-6)

June 26-30, 2006  
 Stockholm, Sweden  
 Conference chair: Prof. Henrik Alfredsson  
 Website: <http://ww2.mech.kth.se/efmcb/>

#### IUTAM Symposium on Computational Physics and New Perspectives in Turbulence

September 11-14, 2006  
 Nagoya, Japan  
 Symposium Chairman: Prof. Y. (Yukio) Kaneda

#### 59th Annual Division of Fluid Dynamics

November 18-21, 2006  
 Tampa, FL

#### IUTAM Symposium on Flow Control with MEMS 2006

London, UK  
 Symposium Chairman: Dr. J.F. (Jonathan) Morrison

#### IUTAM Symposium on Hamiltonian Dynamics, Vortex Structures, Turbulence 2006

Moscow, Russia  
 Symposium Chairman: Prof. V.V. (Valery) Kozlov

*Please send additional items to Steve Pope ([pope@mae.cornell.edu](mailto:pope@mae.cornell.edu)) for the Spring Newsletter.*

# APS/DFD 2005 LEADERSHIP & CONTACT INFORMATION

DFD MEMBERS ARE INVITED TO CONTACT THE DFD LEADERSHIP WITH SUGGESTIONS AND CONCERNS.

## EXECUTIVE COMMITTEE

### Chair

Jerry P. Gollub (11/06)

### Chair-Elect

Howard A. Stone (11/07)

### Vice Chair

Stephen B. Pope (11/08)

### Past-Chair

James M. Wallace (11/05)

### Secretary/Treasurer

James H. Duncan (11/06)

### Division Councilor

Harry L. Swinney (11/06)

### Member-at-Large

Robert P. Behringer (11/05)

### Member-at-Large

Ellen K. Longmire (11/05)

### Member-at-Large

John Foss (11/06)

### Member-at-Large

Gretar Tryggvason (11/06)

### Member-at-Large

Werner Dahm (11/07)

### Member-at-Large

Sandra Troian (11/07)

## NOMINATING COMMITTEE

Nadine Aubry (12/05),  
Chair

Mory Gharib (12/06),  
Vice-chair

Robert Ecke (12/05)

William Schulz (12/05)

Hassan Aref (12/06)

Dwight Barkley (12/06)

Kenny Breuer (12/06)

Leslie Smith (12/06)

## PUBLICATIONS AND MEDIA COMMITTEE

Ugo Piomelli (12/05), Chair  
Gretar Tryggvason (12/06),  
Vice-Chair

Gareth McKinley (12/05)

Emmanuel Villermaux  
(12/05)

Werner Dahm (12/05)

Detlef Lohse (12/07)

Aline Cotel (12/07)

## PROGRAM COMMITTEE

(Chair + 7 members for 3-  
year terms)

Howard Stone (12/05),  
Chair

Ivan Marusic (12/05)

Zellman Warhaft (12/05)

Sandra Troian (12/05)

David Kassoy (12/06)

Melany Hunt (12/06)

Paul Steen (12/06)

Igor Mezic (12/06)

## FELLOWSHIP COMMITTEE

(4 fellows & Vice-Chair, stag-  
gered 2 year terms)

Steve Pope (12/05), Chair

Helen Reed (12/05)

Hermann Riecke (12/05)

Bob Behringer (12/06)

Juan Lasheras (12/06)

Jean-Marc Chomaz (12/06)

Chih-Ming Ho (12/06)

## EXTERNAL AFFAIRS COMMITTEE

Mohamed Gad-el-Hak,  
(12/05), Chair

John Foss (12/06),

Vice-Chair

Stavros Tavoularis (12/05)

Werner Dahm (12/07)

Joe Fernando (12/06)

Mike Reischman (12/06)

Steve Morris (12/06)

Laurette Tuckerman (12/06)

## SELECTION COMMITTEE FOR 2005 FLUID DYNAMICS PRIZE

Marvin Goldstein (12/05),  
Chair

Joel Koplik (2/06),  
Vice-Chair

Ann Karagosian (12/05)

Bud Homsy ('04 prize, 12/05)

Patrick Huerre (12/06)

Tony Maxworthy (12/06)

Philip Morrison (12/06)

## SELECTION COMMITTEE FOR 2005 ACRIVOS AWARD

James Brasseur (12/05),  
Chair

Paul Neitzel (12/06),  
Vice-Chair

Ellen Longmire (12/05)

Ken Melville (12/05)

Marc Perlin (12/05)

Peko Hosoi (12/06)

Richard Leighton (12/06)

## FRENKIEL AWARD

Don Koch (12/05), Chair  
John Hinch (12/06),

Vice-Chair

Robert Moser (12/05, Phys-  
ics of Fluids)

Candace Wark (12/05)

Dan Lathrop (12/06)

Yuriko Renardy (12/06)

Marc Smith, Gatech (12/06)

## Division Website Development Officer

Ken Kiger

## Membership Coordinator

Timothy Wei



## AMERICAN PHYSICAL SOCIETY

Division of Fluid Dynamics

One Physics Ellipse

College Park, MD 20740-3844