SPRING/SUMMER 2021

Division of Fluid Dynamics Newsletter

DFD News

A Division of the American Physical Society

Phoenix

APS DFD 2021

November 21-23

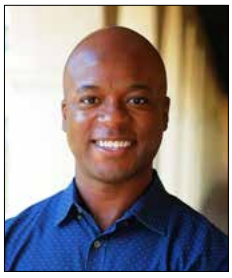
The 74th Annual Meeting of the American Physical Society, Division of Fluid Dynamics (DFD) will be held in person in Phoenix, AZ from Sunday, November 21 through Tuesday, November 23, 2021 at the Phoenix Convention Center. The meeting is being hosted by Arizona State University, University of Arizona, Northern Arizona University, New Mexico Tech and the University of New Mexico.

In this Issue

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.

Message from the Chair

Welcome to the Spring/Summer 2021 Division of Fluid Dynamics newsletter. It comes at a time of cautious optimism that the COVID-19 pandemic may be waning, while recognizing that much of the world remains deeply impacted by this ongoing tragedy. The global response to this pandemic has reinforced the importance of basic science research, and it has highlighted myriad ways in which the scholarship of our particular community in fluid dynamics can contribute significantly to pressing societal challenges. Members of our Division made immediate, deep, and sustained contributions to the fight against COVID-19: microfluidic devices to detect infections more rapidly; low-cost ventilators to support patient care; new hydrodynamic models of aerosol generation and deposition to quantify risk exposure; large-scale simulations of local and community-wide disease transmission to inform policy; and design of more effective personal protective equipment for frontline workers. While some of these innovations originated in just the past year, most leveraged a rich store of fluid dynamics research that has accumulated over many decades through the dedicated efforts of our community.



John O. Dabiri
2021-2022 Chair
APS-Division of Fluid Dynamics

I hope this experience encourages a redoubling of our commitment to deepen the fundamental science of fluid dynamics, even as we pursue important applications of our existing knowledge. Indeed, challenges already on the horizon—a changing climate, an aging population, billions without access to clean energy or clean water—will require new breakthroughs in our understanding of fluid dynamics in its various manifestations. The Division of Fluid Dynamics can play an essential leadership role by ensuring the sustained health and growth of the fluid dynamics research community.

A primary mechanism that fosters our community is the Annual Meeting. **I am pleased to report that the DFD Executive Committee has decided to hold the 2021 meeting "in person" in Phoenix, Arizona.** We recognize

that local conditions regarding COVID-19 vary globally, and it may not be possible for all DFD members to travel to the meeting. While the absence of an online option will be disappointing to some members, we will ensure that all Invited Lectures are recorded and available for DFD members. Where it is feasible, invited talks within the Minisymposia and Focus Sessions may also be recorded. The primary value of the Annual Meeting is in the community that it fosters, so we encourage all members who are able to travel to the meeting to join us in continuing this valued tradition.

As we look forward, I would like to reemphasize the words of our Past Chair Minami Yoda in her letter to the Division one year ago: “COVID-19 has not uniformly affected our community or society; unfortunately, it seems instead to have amplified long established inequalities. This should be recognized and acknowledged.” Data have shown the disparate impact of the pandemic, particularly on women who are often primary caregivers [1]. These dynamics will persist after COVID-19 is gone. Hence, it is imperative that we remain vigilant in the goal of reducing both systemic inequities and those that are endemic to a generational crisis like COVID-19. A more diverse, equitable, and inclusive fluid dynamics community starts with the environment we choose to foster in our individual research groups. For that reason, we each have an important role to play. Our Annual Meeting can also serve as an important model and a celebration of our progress toward these aims. I look forward to seeing you there.

This newsletter provides preliminary information about our upcoming 74th Annual Meeting. We will be updating our website as more information becomes available, so please visit http://apsdfd2021.org.

Additionally, this newsletter presents highlights of our first online Annual Meeting in November 2020. We give special thanks to Jon Freund, Randy Ewoldt, and the rest of the Chicago leadership team for making the event a success despite extraordinarily difficult circumstances.

John O. Dabiri
2021-2022 Chair
APS-Division of Fluid Dynamics

[1] “Impact of COVID-19 on the Careers of Women in Academic Sciences, Engineering, and Medicine” National Academies Press (2021).

2021 Meeting at a Glance

Downtown Phoenix Skyline from Phoenix Mountains Preserve. Photo Credit: Visit Phoenix/photo by dspaz.com

Meeting Venue

Phoenix is the capital city of Arizona and is located in the central region of the state. People may know it for its year-round sun, desert beauty, and world-class resorts and golf, but as the fifth-largest city in the U.S., it also offers sophisticated urbanscapes, southwest culture and lots of outdoor adventure.

The "Valley of the Sun" as Phoenicians refer to it, is surrounded by mountain parks—in fact, South Mountain Park and Preserve is the largest municipal park in the U.S.—so it's easy to get out and enjoy the flora, fauna and some incredible views (and sunsets). And, although Phoenix is in the Sonoran Desert, there are six lakes in close proximity to the city.

For those who prefer indoor pursuits, Phoenix has some unique museums: The Heard Museum, celebrates Native American art and culture; Western Spirit: Scottsdale’s Museum of the West features the art and history of the Old West and the Musical Instrument Museum, the largest museum of its kind in the world hosts a collection of over 15,000 instruments from 200 countries.

Greater Phoenix has become a hotspot for local cuisine of every conceivable variety as well as for beverages that are brewed, distilled or fermented.

Located in downtown Phoenix, the Phoenix Convention Center will host the 74th Annual Meeting of the Division of Fluid Dynamics.

Key Dates

Abstract Submissions

- Abstract Submissions are currently being accepted. Those submitting abstracts must plan to attend the meeting to present their paper.
- Portal Closes: August 2

Registration

- Registration Opens: Early August
  Check the meeting website: http://apsdfd2021.org for updates.
- Regular Registration Rate Available through October 15
- On-Site Registration Rate Begins: October 16
- Cancellation Deadline: November 10
  (no registration refunds past this date)

Travel, Child Care and Persons with Disabilities

Portal Opens: Mid-June
Portal Closes: August 2 (5:00 PM EDT)

Gallery of Fluid Motion Poster and Video Submission

- Entries Must be Made by September 17
- Video Uploading Deadline: October 8
- GFM Poster: Upload poster by October 8 and bring poster to meeting

Visit http://gfm.aps.org

Hotel Accommodations

The Sheraton Phoenix Downtown will be the host hotel for the meeting.

A block of rooms with reduced rates has been reserved for the meeting. In order to get the best hotel rate you must reserve through the APS block. It is important that participants stay at the host hotel and book through our housing website so we secure all of your reserved rooms. Detailed hotel information will be available through the meeting website in July.
https://apsdfd2021.org

Registration

Registration: http://apsdfd2021.org

Registration Fees

	Received on or before 10/15	Starting 10/16
Member	$570	$750
Reciprocal Society Member	$570	$750
Retired Member (with APS Senior Membership)	$310	$400
Graduate Student Member**	$295	$400
Undergraduate Member**	$120	$175
Non-Member	$825	$900
Additional Reception Ticket	$115	$115

Student Registrants**

APS student members may register for the meeting online at a discounted member rate. If you are not an APS member, you can JOIN NOW by contacting APS directly. If you do not wish to become an APS member, you must pay non-member rates.

First year membership is free for first time students and includes (2) free Divisions or Topical Groups for all students. Undergraduate registrations do not include a ticket to the Sunday night reception. Reception tickets may be purchased for $115.

2021 APS/DFD Events

Multiple information and networking events will be available to attendees. These will require advance sign-ups at the time of making your conference registration. Please check the meeting website for updates.

The **Abstract Submission** portal is now open. The abstract submission deadline is August 2, 2021. During abstract submission, you will select a sorting category for your abstract. Note that for 2021, only those planning to attend the meeting should submit abstracts.

2021 Scientific Program

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 2021 award winners, each of whom will give a lecture at the meeting, will be announced in the Fall.

Invited Lectures, Minisymposia, and Focus Sessions

This year, the meeting will consist of eight invited lectures on topics of broad interest to the DFD community. The program will also include three Minisymposia and five Focus Sessions dealing with exciting current research. While the absence of an online option will be disappointing to some members, we will ensure that all invited talks are recorded and available.

The following Focus Sessions and Minisymposia have been selected for the 2021 meeting. Focus Sessions are open to all oral presenters.

Focus Sessions

Hydrodynamics of Benthic Marine Life
Interfacial Active Matter
Planetary Flows in Climate
Surfactants as Hidden Variables
Turbulence in Wind and Solar Energy

Minisymposia

Environmental Flows in Climate
Quantum Algorithms for Fluid Flows
Symmetry in Fluid Dynamics

Poster Session

The meeting will have a Technical Poster Session and Student Poster Session on Monday afternoon in the Exhibit Hall.

Student posters will be judged and awarded 1st and 2nd Prize for “Best Poster” in several categories and winners will receive cash awards and certificates. Awardees will also be highlighted in the DFD Newsletter. The Student Poster Competition constitutes a specific opportunity for graduate and undergraduate students to enhance their presentation skills and to build their professional network.

To be considered for the Student Poster Competition, be sure to submit your poster to the sorting category titled “Fluid Dynamics - Student Poster Competition”. Posters submitted to any other category will not be included in the competition.

Networking Events

Throughout the three-day meeting, DFD will offer a series of networking events. Please check the meeting website in July for a complete listing. Sign up for these events will be available as you register for the conference.

Exhibitors

Exhibitors will be present at the meeting and a complete listing and description of each company will be posted on the meeting website. Please contact Margaret McDonald at Margaret2@meetingsandmore.net for more information.

Gallery of Fluid Motion

The 40th 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 2022 and will appear in the September 2022 issue of the Physical Review Fluids. Please note that the videos will be accessible on-line at gfm.aps.org.

Posters submitted to the Gallery must be uploaded prior to the meeting and also brought to the meeting to hang in the exhibit hall. Note that only those planning to attend the meeting should submit to the Gallery of Fluid Motion.

Travel Grants, Child Care Grants and Grants for Participants with Disabilities

In 2014 the APS/DFD External Affairs Committee initiated travel grants for the DFD meeting, designed to provide full support for attendance for a select few scientists (all researchers are eligible). Priority will be given to researchers who would not otherwise be able to attend the meeting, for whom the meeting comes at a timely point in their career and who have not previously attended a DFD meeting (applicants should address these points in their application).

DFD has also instigated a special childcare grant program designed to provide financial assistance to APS/DFD members who will have additional childcare expenses in order to attend and participate in the annual November meeting.

Additionally, DFD most recently started a program of grants to assist conference participants with disabilities. The program is designed to provide financial assistance and help offset costs for members attending the meeting who will incur additional expenses due to a disability.

The deadline for all three grant programs is August 2, 2021. More details on how to apply can be found under the “Grants” section of the meeting website.

Audiovisual Equipment

All rooms will be equipped with an LCD projector, screen, microphone, and pointer. Speakers must provide their own laptop computer to use with the projector. A speaker ready room with technicians will be available to help attendees ensure that their presentations work smoothly with the LCD projection equipment. We suggest all presenters visit the speaker ready room in advance of their presentation.

Conference Reception

The 2021 meeting will host a reception on Sunday, November 21 at the convention center. Gather with friends and colleagues in a relaxed atmosphere and enjoy catching up in person.

Key Contacts

2021 Phoenix
Meeting Co-Chairs
Marcus Hermann, Arizona State University
marcus.hermann@asu.edu

Konrad Rykaczewski, Arizona State University
Konradr@asu.edu

Abstract Help Line
(301) 209-3290
Monday through Friday, 9:00 am – 5:00 pm EDT
abs-help@aps.org

General Meeting Questions
Email: dfd-help@meetingsandmore.net

Future APS/DFD Meetings

2022: Indianapolis, IN
Meeting Chair
Luciano Castillo, Purdue University

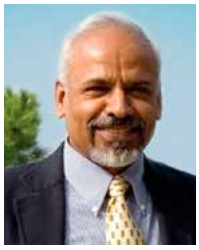
2023: Washington, DC
Meeting Co-Chairs
Kenneth Kiger, University of Maryland
Michael Plesniak, George Washington University

2024: Salt Lake City, UT
Meeting Co-Chairs
Marc Calaf, University of Utah
Henry Fu, University of Utah

APS/DFD 2020 Awards, Prizes, New Fellows, and Gallery Winners

2020 Fluid Dynamics Prize and Otto Laporte Lecture

The Fluid Dynamics Prize recognizes and encourages outstanding achievement in fluid dynamics research.



Katepalli Sreenivasan
New York University

Flow in the Sun
"In recognition of many fundamental contributions to fluid dynamics, especially turbulence from quantum to astrophysical scales."

2020 Stanley Corrsin Award

The Stanley Corrsin Award recognizes and encourages a particularly influential contribution to fundamental fluid dynamics.

Emmanuel Villermaux
Aix-Marseille University

Fluid Mechanics of Mixing and Fragmentation
"For seminal contributions revealing the physics of fragmentation and mixing."

2020 Andreas Acrivos Dissertation Award

The Andreas Acrivos Dissertation Award recognizes a young scientist who has performed original doctoral thesis work of outstanding scientific quality and achievement in the area of fluid dynamics.

Michelle DiBenedetto
Stanford University PhD Thesis
Now at Woods Hole Oceanographic Institution

Transport and behavior of non-spherical particles in waves
"For creative and insightful deployment of theory, simulation, and experiment to reveal the dynamics of non-spherical inertial particles in wave-dominated flows, with application to the behavior of microplastic pollution in the ocean."

2020 François Frenkiel Award

The Division of Fluid Dynamics awards The Francois Frenkiel Award to young investigators in recognition of significant contributions to Fluid Mechanics that have also been published during the previous year in Physical Review Fluids.

Award for the paper titled:
Elasto-capillary adhesion: Effect of deformability on adhesion strength and detachment
Phys. Rev. Fluids 4, 033601 (2019)
by Matthew Butler, Finn Box, Thomas Robert, and Dominic Vella, University of Oxford

Matthew Butler
University of Oxford

Finn Box
University of Oxford

Thomas Robert
University of Oxford

Dominic Vella
University of Oxford

2020 New Fellows

Snezhana I. Abarzhi
University of Western Australia

Citation: For deep and abiding work on the Rayleigh-Taylor and related instabilities, and for sustained leadership in that community.

Richard Craster
Imperial College London

Citation: For important contributions to a wide range of fluid mechanical problems including thin-film flows, viscoplastic flows, and acoustic metamaterials.

Nicholas Hutchins
University of Melbourne

Citation: For elegant experiments that have advanced understanding of the structure and drag-causing mechanisms of wall-bounded turbulent flows.

Tim Lieuwen
Georgia Institute of Technology

Citation: For outstanding contributions to the understanding of reacting shear flows, particularly the interactions of hydrodynamic stability, thermoacoustic stability, and flames.

Alison L. Marsden
Stanford University

Citation: "For the development of numerical methods for cardiovascular blood flow simulation and their application to cardiovascular surgery and congenital heart disease."

Raymond Shaw
Michigan Technological University

Citation: For seminal contributions to the understanding atmospheric turbulence's role in cloud processes, from droplet nucleation to growth through condensation and coalescence, using precise laboratory and atmospheric measurements and insightful theoretical work.

Olga Shishkina
Max Planck Institute for Dynamics and Self-Organization

Citation: For seminal contributions to the understanding of thermally driven turbulent convection, including Rayleigh-Bénard convection, rotating Rayleigh-Bénard convection, and horizontal and vertical convection, both by numerical simulations and by theory.

Jennifer Sinclair Curtis
University of California, Davis

Citation: For seminal research advancements in understanding particulate flow phenomena and for the development of predictive models.

Chao Sun
Tsinghua University

Citation: For fundamental contributions to the understanding of turbulent Taylor-Couette and Rayleigh-Bénard flows and dispersed multiphase flows, to illuminating experiments on droplet impact, and for being an international leader in experimental fluid dynamics.

As has long been the tradition, the best posters and videos are chosen amongst the entries at the meeting each year. The top three from each category are awarded the Milton Van Dyke Award for fluid flow visualization. The posters and videos can be viewed at gfm.aps.org.

2020 Gallery of Fluid Motion Awards

V0026: Fuel injection supersonic cavity
H. Sitaraman, N. Brunhart-Lupo, M. de Frahan, S. Yellapantula, B. Perry, J. Rood, R. Grout, M. Day, R. Binyahib, and K. Gruchalla

V0019: Rayleigh-Taylor instability in drop impact experiments
V. Lherm, R. Deguen, T. Alboussière, and M. Landeau

V0074: The beauty of turbulent convection: A particle tracking endeavor
P. Godbersen, J. Bosbach, D. Schanz, and A. Schröder

2020 Milton Van Dyke Awards

Videos

V0020: Rocket yeast
S. Atis, B. Weinstein, A. Murray, and D. Nelson

V0052: Impact of high-speed diesel drop trains — pursuing cleaner diesel engines
D. Markt, M. Raessi, A. Pathak, S.-Y. Lee, and R. Torelli

V0067: Air flow in opera
P. Bourrainne, P. Kaneelil, M. Abkarian, and H. Stone

Posters

P0004: Spectral landscapes of flow instabilities in brain aneurysms
T. Natarajan, D. MacDonald, L. Temor, P. Coppin and D. Steinman

P0027: Viscous wrinkling of non-uniform sheets
O. McRae, A. Oratis and J. Bird

P0017: Fluid dynamics of COVID-19 spread
C. Kovar, L. Panczner, H. Reuter and A. Eslam-Panah

2020 Highlights

Due to the pandemic, the would-be Chicago 2020 DFD meeting was hastily switched to be held virtually in November 2020. The meeting's traditional backbone of award presentations, invited presentations, and minisymposia was used to provide some structure.

The meeting included 4 award lectures, 12 invited talks, and 4 minisymposia. Other submitted abstracts were accessed in an on-demand mode—a virtual variant of the DFD Bulletin—along with a flexible array of author selected supporting materials. In total, there were 2471 abstracts and over 3300 registrants.

A selection of virtual side events (Women in Fluids Networking, A Virtual Student "Lunch", Underrepresented Minorities and Research, a Young Investigator Workshop, and a Physical Review Tutorial for Authors and Referees) was also included in the meeting format. There were unfortunate but not unexpected technical glitches, which were no doubt disruptive, but on the whole there was ready access to a tremendous breadth of current fluid mechanics research.

The Division would like to thank Jonathan Freund from the University of Illinois Urbana-Champaign for proposing Chicago for 2020 and then staying on to chair the virtual event, with significant input from Randy Ewoldt and others at Illinois plus teams at Notre Dame, the University of Illinois Chicago, the University of Chicago, Northwestern University, the Illinois Institute of Technology, the University of Wisconsin Madison, and for the first time ever international co-organizers from CNRS Universite de Paris and Seoul National University.

2020 Invited Talks

Lydia Bourouiba, MIT
The fluid dynamics of disease transmission

Luciano Castillo, Purdue
On fake walls along the USA/Mexico border

Randy Ewoldt, Univ. Illinois Urbana-Champaign
Designing complex fluids

Guowei He, Chinese Academy of Sciences
Space-time energy spectra in turbulent flows

Anne Juel, Univ. Manchester
Viscous fingering instabilities: from suppression to disorder

Douglas Kelley, University of Rochester
Brain cerebrospinal fluid flow

Heidi Nepf, MIT
Vegetation hydrodynamics for climate mitigation and adaptation

Daniel Price, Monash University
MythBusters: Smoothed particle hydrodynamics in astrophysics and engineering

Suzie Protière, CNRS
The mechanics of capillary assemblies

Olga Shishkina, Max Planck Institute
Boundary zonal flows in rotating Rayleigh-Benard convection and other turbulent convective superstructures

Jean-Luc Thiffeault, Univ. Wisconsin
Stirring by microswimmers and their interaction with boundaries

Tamer Zaki, Johns Hopkins
From limited observations to the state of turbulence: Fundamental difficulties of flow reconstruction

2020 Minisymposia

Eric Lauga, University of Cambridge
Emmanuel Villermaux, Aix Marseille Université
PR Fluids/Fluids Next: Fluid Mechanics of Infectious Diseases

Jonathan Naughton, University of Wyoming
Charles Meneveau, Johns Hopkins University
Wind Energy Fluid Mechanics

Raymond Shaw, Michigan Tech. University
PR Fluids/Fluids Next: Fluid Dynamics of Atmospheric Clouds

Endre Mossige, University of California, Santa Barbara
Kitchen Flows

2020 Focus Sessions

George Karniadakis, Brown University
Gianluca Iaccarino, Stanford University
Deep Learning in Experimental and Computational Fluid Mechanics

Ivan Christov, Purdue University
Amy Marconnet, Purdue University
Understanding Thermal Transport in Flows of Dense Suspensions

Yuan-Nan Young, New Jersey Institute of Technology
Fluid Dynamics in a Deformable Porous Medium

Obituaries

Daniel F. Jankowski, professor emeritus of mechanical and aerospace engineering at Arizona State University, passed away peacefully on November 10, 2020 at his Tempe, Arizona home. Born in Hamtramck, Michigan on June 15, 1936, he was 84 years old. At the time of his passing, Dan was surrounded by his wife of 62 years, Betty, and three of their four children, David, Betsy and Kathy. Dan's and Betty's youngest son, Michael, predeceased him. He is also survived by six grandchildren and one great-grandchild.

A product of Detroit parochial and public schools and a veteran of the U. S. Army, Dan received all his post-secondary education at the University of Michigan, with his doctoral research in engineering mechanics conducted under the supervision of Prof. C.-S. Yih. He spent his entire academic career at Arizona State University, where he, in addition to his professorship, served for a time as associate dean for academic affairs and interim dean of the College of Engineering and Applied Sciences. He was a consummate educator and researcher, winning several awards for his teaching. He cared deeply about all his students and, despite being known among the ASU undergraduates by the nickname "Jaws," was revered by them for his dedication. He was the type of professor whose efforts were most often recognized by students several years after studying under him.

As a researcher, Dan focused much of his effort on the study of rotating flows and problems of hydrodynamic stability. Although he began his career in fluid mechanics doing theoretical work, he transitioned over the years to the performance of careful experiments. With Takeuchi, he conducted fundamental experiments on the stability of spiral-Poiseuille flow. Research with students Cooper and Squire demonstrated, during an experiment to study the onset of centrifugal instability in unsteady Taylor-Couette flow, that a laser-Doppler velocimeter could actually serve as a disturbance source (through heating), triggering the instability earlier than predicted. Work with several students and colleagues investigated the stability of thermocapillary convection in liquid-bridge models of float-zone crystal growth and he was the inspiration behind a set of experiments conducted at Georgia Tech demonstrating the suppression of hydrothermal waves.

Dan was a regular attendee at the annual meeting of the DFD and served as the co-organizer for the 1991 meeting held in Scottsdale, AZ. He was also the co-organizer of a 1987 Taylor-Vortex Flow Working Party Meeting held in Arizona, bringing together specialists from America, Europe, Asia, and Australia; a big hit of that meeting was Dan's idea to hold the "banquet" as a cookout in the desert under the stars.

In his retirement, Dan was working on an undergraduate text in fluid mechanics that he dubbed, "the book that shall never be finished." Those of us who knew him well will miss his dedication, insight, counsel, and outstanding sense of humor.

—G. Paul Neitzel

Juan C. Lasheras, Distinguished Professor of Mechanical and Aerospace Engineering and Bioengineering at the University of California San Diego, passed away on February 1, 2021 after a brief battle with cancer. He was 69 years old.

Lasheras was born in Valencia, Spain, and spent most of his formative years near Murcia. At age 18, Lasheras began his studies at the Universidad Politécnica de Madrid in Aeronautical Engineering and graduated at the top of his class in 1977. He then secured a Guggenheim fellowship to continue his studies at Princeton University, where he began to develop his skills as a creative experimentalist. He designed a combustion facility from scratch that, for the first time, allowed investigation of the mechanisms for explosive (disruptive) burning of multicomponent and emulsified fuel droplets. His pioneering work caught the attention of the research department at the Shell corporation, which hired him as a Research Scientist in 1981 to direct the combustion group at the Royal Dutch Shell Laboratory in Amsterdam.

In 1983, Lasheras returned to the US as an Assistant Professor in the Department of Mechanical Engineering at the University of Southern California. In the following years, he used his experimental skills to investigate a number of fluid dynamics problems related to aerospace propulsion applications. For example, his experiments helped clarify the structure and stability of turbulent mixing layers and jets, as well as the regimes of liquid atomization relevant to the design of rocket engines.

Lasheras joined UC San Diego as Professor in 1991. While he maintained an active research program addressing flow problems for engineering applications, he also developed an interest in biomedical applications, and in a short time he built a brilliant career working at

the interfaces between mechanics, biology, and medicine. He addressed a wide variety of problems in these areas, including endovascular techniques to induce and control mild hypothermia, unsteady blood flows and the risk of rupture of aortic and intracranial arterial aneurysms. More recently, his work encompassed cerebrospinal flow in the central nervous system and its role in intrathecal drug delivery procedures. His contributions are equally important at the cellular level, including the development of a novel, three-dimensional cell-traction-force microscopy method and clarification of some of the biochemical pathways for the generation of the traction forces exerted by cells during migration. His success was a result of his remarkable ability to form and motivate research teams that included individuals from different disciplines who were able to contribute a wide range of research tools. Juan's exceptional interpersonal and communication skills were key in enabling and promoting the collaborative work of people with completely different backgrounds, successfully facilitating the harmonious interaction of biologists and medical doctors with electrical, mechanical, and aerospace engineers.

Lasheras was also very active in service to the scientific community. He served as Secretary/Treasurer of the Division of Fluid Mechanics of APS and later as Chair of the division as well as member of the APS Executive Council. He chaired the APS DFD Organizing Committee for two annual meetings in San Diego in 2001 and 2012. He was also a recipient of the F. Frenkiel Award for Fluid Dynamics and an APS Fellow.

Beyond all of his professional accomplishments, Lasheras was a caring and generous person. He had a profound impact on many students, staff, and faculty at UC San Diego. Outside of work, he was an excellent golfer and a skilled chef. He is survived by Alexis, his wife of over 35 years, his siblings, Maruja, Arsenio, and Teresa, and his nephews and nieces, Javier, Carmen, Jose Maria, Arsenio, Luz, Jaime, and Robbie.

Roddam Narasimha passed away in Bangalore, India on December 14, 2020. Born in July 1933, Roddam had his early education in Bangalore, obtained a BE in Mechanical Engineering from the University of Mysore, followed by Diploma and Associateship degrees in Aeronautical Engineering from the Indian Institute of Science (IISc), after which he did his PhD at GALCIT at Caltech with Hans W. Liepmann. In 1962, he returned to Bangalore, where he spent his professional career spanning more than five decades. Roddam had deep interests in education, parallel computing, and classical Indian science and philosophy.

His research interests spanned a wide range of topics in fluid mechanics: gas dynamics and kinetic theory, stability and transition, turbulence, drag reduction, cumulus clouds, the Indian monsoon. At Caltech he worked on molecular flows and structure of shock waves. His first research, at IISc with Satish Dhawan (who remained an important mentor), was on transition to turbulence in boundary layers, and he later developed models widely used for predicting transition lengths. Much of Roddam's work on turbulent flows was related to their structure, nature of equilibrium, and behavior of such flows when subject to additional forces, e.g. streamwise or transverse curvatures and sharp pressure gradients. A seminal contribution on relaminarisation is described in his review (with K. R. Sreenivasan) in Advances in Applied Mechanics. He later studied flows in the atmosphere, in particular related to the Indian monsoon and cloud-like flows. For his role as a teacher and advisor, he received the Nature Lifetime Achievement Award for Mentoring in Science in 2019.

Roddam strongly advocated for and established the Centre for Atmospheric Sciences at IISc in 1982, and the governmental Ministry of Earth Sciences in New Delhi in 2005. He was the director of the National Aerospace Laboratories (1984–93) and the National Institute of Advanced Sciences (1997–2004), and served on the prime minister's Scientific Advisory Council.

Roddam was a Fellow of all the academies in India, the US National Academy of Sciences and of Engineering, the Royal Society of London, the American Academy of Arts and Science, and The World Academy of Sciences (TWAS). In 2013 he was awarded the Padma Vibhushan, India's second highest civilian award. He was the Clark B Millikan Professor and Sherman Fairchild Distinguished Scholar at Caltech, and the Jawaharlal Nehru Professor of Engineering at the University of Cambridge.

—Jaywant H. Arakeri and G. S. Bhat

APS/DFD 2020-2021 Leadership

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Caltech

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NOMINATING COMMITTEE

8 members, staggered 2-year terms
Luca Biferale, Chair (12/21)
Joanna Austin (12/21)
Anke Lindner (12/21)
Shu Takagi (12/21)
Dan Henningson (12/22)
Roberto Zenit (12/22)
Ivan Marusic, Vice Chair (12/22)
Bruce Sutherland (12/22)

PROGRAM COMMITTEE

8 members, staggered 3-year terms + March Meeting liaison + 2 local organizing committee (LOC) members
John Dabiri, Chair (12/21)
Detlef Lohse, Vice Chair (12/21)
Michael Brenner (12/21)
Marcus Herrmann (12/21)
David Richter (12/21)
Luciano Castillo (12/23)
Sarah Waters (12/23)
Kathy Prestridge (12/23)
Paulo Arratia, MM liaison (12/21)
Konrad Rykaczewski (12/21)

FELLOWSHIP COMMITTEE

8 Fellows, staggered 2-year terms
Detlef Lohse, Chair (12/21)
Bill Schultz (12/22)
Jacqueline Chen (12/21)
Anne De Wit (12/21)
Rama Govindarajan (12/22)
Keith Julien (12/22)
David Saintillan (12/22)
Olga Shishkina (12/22)

EXTERNAL AFFAIRS COMMITTEE

8 members, staggered 3-year terms
Kiran Bhaganagar, Chair (12/21)
Satish Kumar (12/21)
Arindam Banerjee (12/21)
Kirti Sahu (12/21)
Parisa Mirbod, Vice Chair (12/22)
Douglas Kelley (12/23)
Pirouz Kavehpour (12/23)
Monica Martinez (12/23)

FLUID DYNAMICS PRIZE COMMITTEE

8 members, staggered 2-year terms + award winner from previous cycle, 1-year term
Thomas Corke, Chair (12/21)
Lyderic Bocquet (12/21)
Yoshifumi Kimura (12/21)
Tomas Bohr, Vice Chair (12/22)
Sascha Hilgenfeldt (12/22)
Beverley McKeon (12/22)
Anne Juel (12/22)
Michael Brenner (12/22)
Katepalli Sreenivasan, 2020 Winner (12/21)

CORRSIN AWARD COMMITTEE

7 members, staggered 2-year terms + award winner from previous cycle, 1-year term
Richard Lueptow, Chair (12/21)
Lisa Fauci (12/21)
Hyung Jin Sung (12/21)
Laurette Tuckerman (12/21)
Nick Hutchins (12/22)
Jeff Eldredge, Vice Chair (12/22)
Charles Meneveau (12/22)
Emmanuel Villermaux, 2020 Winner (12/21)

ACRIVOS AWARD COMMITTEE

7 members, staggered 2-year terms
Tim Colonius, Chair (12/21)
Christine Gilbert (12/21)
Karen Mulleners (12/21)
Alain Pumir, Vice Chair (12/22)
Sebastien Michelin (12/22)
Yuan Nan Young (12/22)
Jane Wang (12/22)
Michelle DiBenedetto, 2020 Winner (12/21)

FRENKIEL AWARD COMMITTEE

6 members, staggered 2-year terms + award winner from previous cycle, 1-year term + Physical Review Fluids liaison
Eva Kanso, Chair (12/21)
Roman Grigoriev (12/21)
Devaraj van der Meer (12/22)
Chao Sun (12/22)
Martin Oberlack (12/22)
Pascale Garaud, Vice Chair (12/22)
Dominic Vella, 2020 Winner (12/21)
Clancy Rowley, PRF Liaison (12/21)

MEDIA AND SCIENCE RELATIONS COMMITTEE

7 members, staggered 3-year terms
Anya Jones, Chair (12/22)
David Hu, Vice Chair (12/21)
Mattia Gazzola (12/22)
Vivek Narsimhan (12/21)
Brian Elbing (12/23)
Alvaro Marin (12/23)
Megan Leftwich (12/23)

Gallery of Fluid Motion Lead:
Azar Eslam Panah

EDUCATIONAL & CAREER OUTREACH COMMITTEE

6 members, staggered 2-year terms
Keith Moored, Chair (12/21)
Margaret Byron, Vice Chair (12/22)
Andres Goza (12/21)
Kerstin Nordstrom (12/21)
Valerie Troutman (12/22)
Haoxiang Luo (12/22)
Mitul Luhar (12/22)

DIVERSITY AND INCLUSION COMMITTEE

8 members, staggered 3-year terms
Raul Cal, Chair (12/21)
Luciano Castillo, Vice Chair (12/21)
P. K. Yeung (12/21)
Melissa Green (12/22)
Laura Villafane Roca (12/23)
Peko Hosoi (12/23)
Thomas Ward (12/23)
Ke-Qing Xia (12/23)

GALLERY OF FLUID MOTION

Azar Eslam Panah

APS REPRESENTATIVE ON US NATIONAL COMMITTEE FOR THEORETICAL AND APPLIED MECHANICS

Beverley McKeon

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