

Editorial: Introduction to the 42nd Annual Gallery of Fluid Motion (Salt Lake City, UT USA 2024)

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(Received 12 November 2025; published 20 November 2025)

DOI: [10.1103/PhysRevFluids.10.110001](https://doi.org/10.1103/PhysRevFluids.10.110001)

The 77th Annual Meeting of the American Physical Society (APS) Division of Fluid Dynamics (DFD) was held in Salt Lake City, Utah, from November 24–26, 2024. As part of the meeting, the Gallery of Fluid Motion (GFM) once again provided a unique venue to celebrate the remarkable beauty and complexity of fluid flows. This year's GFM invited both video and poster submissions from researchers around the world, highlighting the synergy of experimental, computational, and theoretical fluid dynamics.

The 2024 submission process followed a familiar timeline, with final entries due by September 10, 2024. Contributors submitted a total of 60 video submissions and 39 poster submissions. The entries reflected a wide range of topics and techniques, and the international engagement continued to grow, with submissions representing North America, Europe, Asia, and additional regions. During the conference, posters were displayed in print, while the videos played continuously in the Gallery of Fluid Motion viewing area that was dispersed along a walkway through the Salt Palace Convention Center.

To evaluate the entries, a panel of nineteen experts in experimental and computational fluid dynamics was convened. Fourteen judges evaluated the video entries, while eight judges assessed the posters. Each video submission was reviewed by at least four judges, who assigned scores based on aesthetics, scientific merit, originality, clarity, accessibility to non-experts, and overall contribution to the appreciation of fluid dynamics. The top 10 videos were then evaluated by an additional four judges. Both videos and posters were rated on a scale from 1 to 5.

The top three videos and top three posters received the Milton Van Dyke Award, established in honor of Professor *Milton Van Dyke* (1922–2010), whose *Album of Fluid Motion* remains a cherished resource in our field. Each award includes an APS certificate, a copy of *An Album of Fluid Motion*, a cash prize, and an invitation to publish in *Physical Review Fluids*. In addition, three video entries and two poster entries received Gallery of Fluid Motion Awards, which include all of the same honors except the cash prize.

As in previous years, we sincerely congratulate the award recipients and thank all participants for their outstanding submissions. Their creativity and dedication continue to make the Gallery of Fluid Motion a highlight of the DFD meeting each year. Current and past entries can be viewed

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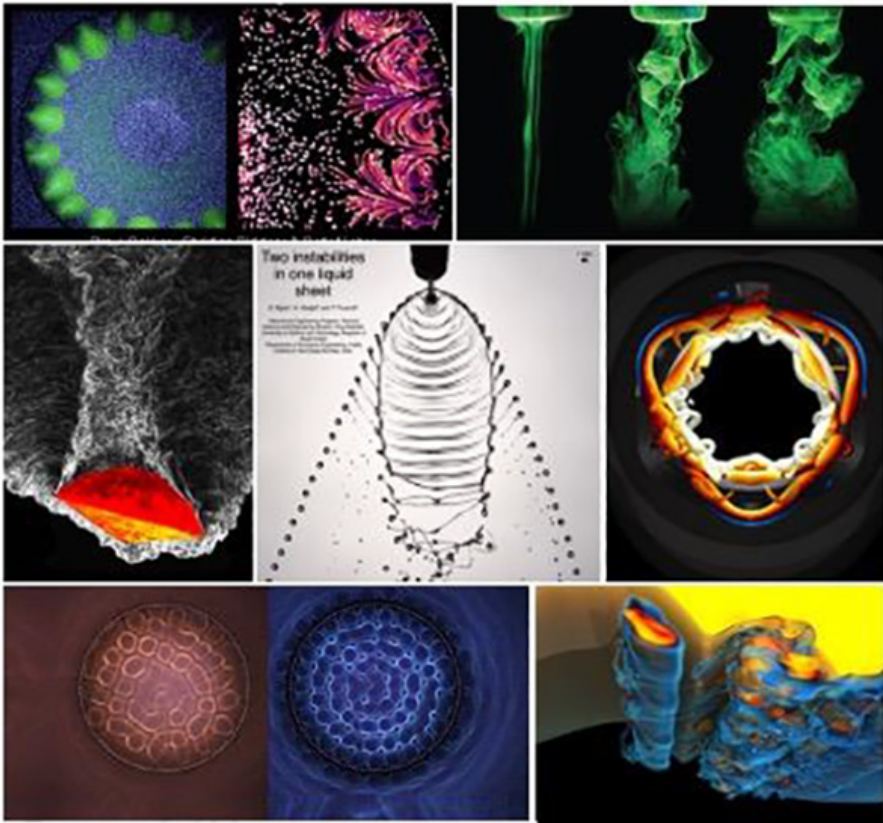


FIG. 1. A collage taken from award recipients from the 2024 Gallery of Fluid Motion.

on the official GFM website (<https://gfm.aps.org>). The authors congratulate the winners and thank all the participants for the excellent submissions. All the entries, including those from prior years, are accessible on the official GFM website. Figure 1 shows a representative image from each of the winning entries, which are listed below.

Milton van Dyke Award Winners-Video

(1) Exploding drops on lubricated surfaces: Marcus Lin, Fauzia W. Wardani, Dan Daniel, *King Abdullah University of Science and Technology*

(2) Bubble-mediated gas exchange in turbulent multi-phase flow: Sergio Pirozzoli, *Sapienza University of Rome*, Simone Di Giorgio, Alessandro Iafrati, *Institute of marine engineering–CNR*, Francesco Zonta, *University of Newcastle*, Alfredo Soldati, *Vienna University of Technology*, *University of Udine*

(3) The mysterious case of an evaporating binary drop: Pim Dekker, Christian Diddens, Detlef Lohse, *University of Twente*

Milton van Dyke Award Winners-Poster

(1) Two instabilities in one liquid sheet: Sandip Dighe, *King Abdullah Univ of Science and Technology*, Hrishikesh Gadgil, *Indian Institute of Technology*, Tadd Truscott, *King Abdullah University of Science and Technology*

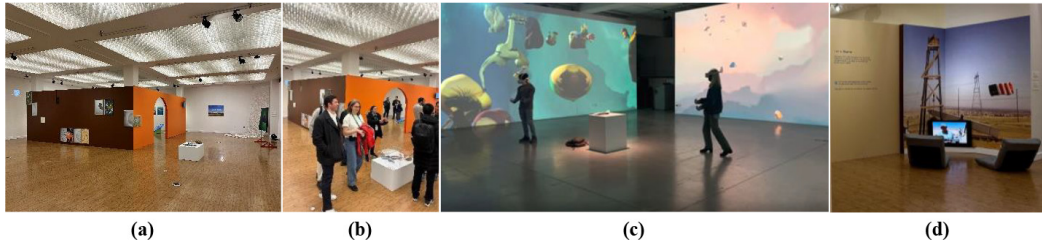


FIG. 2. (a)–(d) Selected exhibit items and audience engagement with *Spiraling Upwards*.

(2) Bow Shock Instability at Hypersonic Speed: Adrián Antón Álvarez, *California Institute of Technology*, Adrian Lozano-Duran, *California Institute of Technology / MIT*

(3) You spin my ice right round: Kari Perry, Sarah E. Morris, *Montana State University*

Gallery of Fluid Motion Winners-Video

(1) Transient parametric response of downward propagating premixed flames to self-induced thermoacoustic pressure waves: Jerric Delfin, *Hokkaido University*, *University of the Philippines Los Baños*, Nozomu Hashimoto, Osamu Fujita, *Hokkaido University*

(2) Transition to turbulence past bioprosthetic aortic valves: Karoline-Marie Bornemann, Dominik Obrist, *University of Bern*

(3) Galloping Bubbles: Jian Hui Guan, Saiful I. Tamim, Connor W. Magoon, *University of North Carolina at Chapel Hill*, Howard A. Stone, *Princeton University*, Pedro J. Saenz, *University of North Carolina at Chapel Hill*

Gallery of Fluid Motion Winners-Poster

(1) The Crown (Poster): Lyes Kahouadji, Mosayeb Shams, Debashis Panda, Abdullah M. Abdal, *Imperial College London*, Seungwon Shin, *Hongik University*, Jalel Chergui, *CNRS*, Damir Juric, *Université Paris Saclay*, *Centre National de la Recherche Scientifique (CNRS)*, *Laboratoire Interdisciplinaire des Sciences du Numérique (LISN)*, 91400 Orsay, France, Omar K. Matar, *Imperial College London*

(2) Viscoelastic Vortex Street (Poster): Umang N. Patel, Jonathan P. Rothstein, Yahya Modarres-Sadeghi, *University of Massachusetts Amherst*

We extend deep appreciation to the panel of judges, who took time before and during the conference to provide unbiased evaluations. We hope it was as pleasurable an experience as it was for the coordinators in viewing the submissions. We look forward to viewing the entries for the GFM at the 78th annual DFD meeting at Houston TX during November 2026.

The “Traveling” Gallery of Fluid Motion (TGFM) was initiated at the DFD 2023 meeting *Chaosmosis: Assigning Rhythm to the Turbulent*, held at The National Academy of Sciences in Washington DC. The purpose of the traveling gallery is to bring fluid dynamics to the public through the lens of art. This museum styled exhibit is designed to engage viewers’ senses and bring the science of fluid dynamics to life. In 2024, the Gallery of Fluid Motion, in partnership with The Leonardo Museum, in Salt Lake City, UT, opened the second TGFM exhibition. *Spiraling Upwards* (see Fig. 2) offered visitors the opportunity to see and interact with installations that demonstrate the physics of fluids and how it can help them understand the world around them. This year’s presentation delved into the intersection of Leonardo da Vinci’s studies on fluid dynamics and flight,

alongside carefully selected pieces from the Gallery of Fluid Motion's archive at the American Physical Society's Division of Fluid Dynamics (APS-DFD). The exhibit was on display from Oct 2, 2024 to Jan 31, 2025. This exhibition was curated by: Natalia Almonte & Nicole Economides and coordinated by Azar Panah. It was supported by the National Science Foundation (NSF), the American Physical Society (APS), and local universities and industry partners.