

**Editorial: Introduction to the 40th Annual Gallery of Fluid Motion
(Indianapolis, IN, USA 2022)**

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The 75th Annual Meeting of the American Physical Society (APS) – Division of Fluid Mechanics was held in Indianapolis, IN from November 20–22, 2022. The Gallery of Fluid Motion (GFM) event invited Video and Poster submissions from conference attendees. The submission timeline was similar to previous competitions with the deadline for an intent to submit on September 16, 2022 and the final submission deadline on October 7, 2022. This year the number of submitted videos considerably exceeded the number of posters, with a total of 82 videos and 33 posters, submitted by the deadline from across the world (39% from North America, 27% each from Europe and Asia, and 7% from South America/Australia/New Zealand). To rate the entries, a panel of eleven judges for the videos and four judges for the posters was convened, comprised of experts in experimental and computational fluid dynamics. Each entry was randomly assigned to at least three judges, who rated it on a scale from 1 to 5 based on aesthetics, scientific merit, and originality. The average scores were tallied and the top three entries in each category were chosen as the winners of the Milton van Dyke award. This award was established in honor of Professor Milton Denman Van Dyke (1922–2010), known for his work in fluid dynamics and, in particular, for publishing *An Album of Fluid Motion* featuring a collection of black-and-white photographs of flow visualization in experiments from researchers all over the world. In addition to the top three videos and top three posters, five additional video entries and one poster entry were selected as winners for the Gallery of Fluid Motion. All the poster entries were displayed in print and the video entries were played in a loop in the GFM viewing area at the Indianapolis Convention Center during the conference.

The authors congratulate the winners, listed below, and thank all the participants for the excellent submissions and for helping to maintain strong interest in the Gallery of Fluid Motion. All the entries, including those from prior years, are accessible on the official GFM website. A selection of images from the winning entries are shown in Fig. 1.

Milton van Dyke Award Winners–Video

- (1) **Simulation of an RCCI Engine using the Pele Suite of Exascale Codes:** Nicholas Wimer, Lucas Esclapez, Nicholas Brunhart-Lupo, Marc Henry de Frahan, Mohammad Rahimi, Malik Hassanal, Jon Rood, Shashank Yellapantula, Hariswaran Sitaraman, Bruce Perry,

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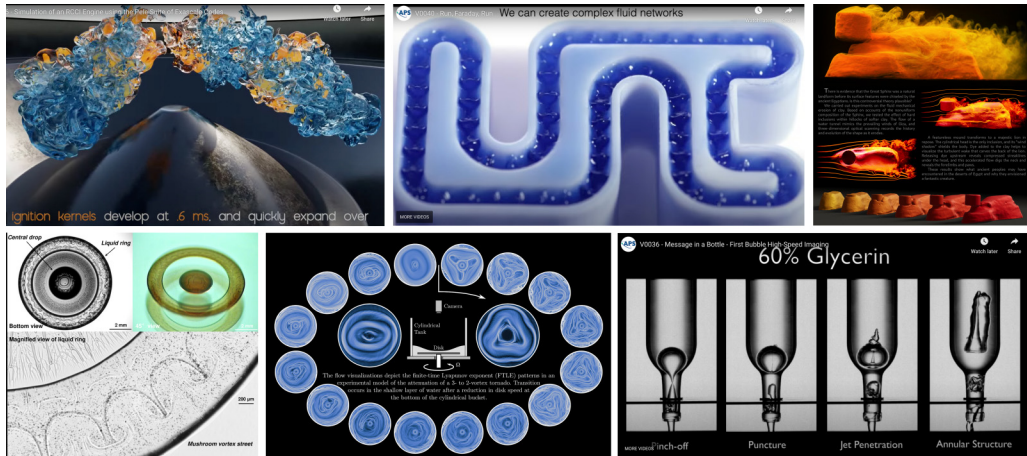


FIG. 1. A collage of the winning entries of the 40th Annual GFM. All the entries are available on the official GFM website (<https://gfm.aps.org>).

- Michael Martin, Olga Doronina, Sreejith Nadakkal Appukuttan, and Marc Day, *National Renewable Energy Laboratory*; and Martin Rieth, *Sandia National Laboratory*
- (2) **Run, Faraday, Run:** Jian Hui Guan, Connor Magoon, Roberto Camassa, and Pedro Saenz, *University of North Carolina at Chapel Hill*; Matthew Durrey, *University of Glasgow*
 - (3) **Message in a Bottle - First Bubble High-Speed Imaging:** Hans Mayer, Tuyethuc Nguyen, and Wanjiku Gichigi, *California Polytechnic State University, San Luis Obispo*

Milton van Dyke Award Winners–Poster

- (1) **Mushroom Vortex Street:** Meng Shi and Sigurdur Thoroddsen, *King Abdullah University of Science and Technology*
- (2) **Sculpting the Sphinx:** Samuel Boury, Scott Weady, and Leif Ristorph, *Courant Institute of Mathematical Sciences*
- (3) **Multiple vortex tornadoes in bucket:** Giuseppe Di Labbio, *École de technologie supérieure, Montreal Quebec, Canada*; Hamid Ait Abderrahmane, *Khalifa University, UAE*; Mohamed Fayed, *American University of the Middle East, Kuwait*; and Hoi Dick Ng, *Concordia University, Montreal Quebec, Canada*

Gallery of Fluid Motion Winners

- (1) **Thin film flow between fibers: inertial sheets and liquid bridge patterns** (Video): Chase Gabbard and Joshua Bostwick, *Clemson University*
- (2) **A Mandelbrot granular raft** (Video): Bavand Keshavarz and Michela Geri, *Massachusetts Institute of Technology*
- (3) **Turbulence through sustained vortex ring collisions** (Video): Takumi Matsuzawa, Noah Mitchell, Stéphane Perrard, and William Irvine, *The University of Chicago*
- (4) **Direct numerical simulation of a micro-ramp in a high-Reynolds number supersonic turbulent boundary layer** (Video): Francesco Salvatore and Antonio Memmolo, *CINECA, Italy*; Davide Modesti, *Delft University of Technology, Netherlands*; Giacomo Della Posta and Matteo Bernardini, *University of Rome La Sapienza, Italy*
- (5) **Reconfiguring it out: how flexible structures interact with fluid flows** (Video): Mrudhula Baskaran, Louis Hutin, and Karen Mulleners, *Ecole polytechnique fédérale de Lausanne*

- (6) **Self Inducing Subharmonic Waves** (Poster): Debashis Panda, Lyes Kahouadji, and Omar Matar, *Imperial College London, United Kingdom*; Seungwon Shin, *Hongik University, Republic of Korea*; Jalel Chergui and Damir Juric, *Université Paris Saclay, Centre National de la Recherche Scientifique (CNRS), Laboratoire Interdisciplinaire des Sciences du Numérique (LISN), France*

We extend our deep gratitude to the panel of judges, who invested time out of their schedules to rate the entries. We hope it was as pleasurable an experience as it was for the coordinators in viewing the submissions. We thank Dr. Azar Panah, the Coordinator of the Gallery of Fluid Motion for her advice and help with overseeing the GFM entries and the competition. We would like to express our appreciation to Peggy Holland and Margaret McDonald from Meetings and More for their assistance with the award ceremony, as well as to Mark Doyle from APS for his technical support with submissions. We also thank the local organizing committee, and especially the meeting chairs Profs. Luciano Castillo and Arezoo Ardekani for the efficient organization of the event. The authors are optimistic about the future growth of support for the Gallery and extend their best wishes to Dr. Azar Panah and the local organizing committee as they prepare for the event at the 76th Annual DFD meeting in Washington, D.C.