



3rd Workshop

Hydrodynamics at small scales: from soft matter to bioengineering

October 25-27, 2024
TTJ Auditorium, IC&SR,
IIT Madras

Contacts

Prof. Sakir Amiroudine
Université de Bordeaux
sakir.amiroudine@u-bordeaux.fr

Prof. Suman Chakraborty
IIT Kharagpur
suman@mech.iitkgp.ac.in

For more information: <https://hydrobio2024.sciencesconf.org/>

Workshop Agenda

Friday, 25th of October 2024

08:30 am to 09:00 am	Welcome address by organizers and officials from IIT Madras
09:00 am to 10:40 am	Drops & Bubbles I Chair: Gaurav Tomar
09:00 am to 09:20 am	Forces acting on a small spherical droplet and Mass transfer Eric Climent , <i>IMFT-Toulouse</i>
09:20 am to 09:40 am	Ultrasound reforms droplets Ashis Kumar Sen , <i>IIT Madras</i>
09:40 am to 10:00 am	The Regimes around Spreading and Splashing due to Falling Drops Gautam Biswas , <i>IIT Kanpur</i>
10:00 am to 10:20 am	Dynamics and rupture of liquid plugs in capillaries: cascades, memory effects and anti-Bretherton droplet formation Michael Baudoin , <i>Université de Lille</i>
10:20 am to 10:40 am	Droplet behavior on superheated substrates – splashing to trampolining Susmita Dash , <i>IISc Bengaluru</i>
10:40 am to 11:10 am	COFFEE BREAK
11:10 am to 11:40 am	Director CNRS (India) & Consulate General of France in Pondicherry
11:40 am to 12:40 pm	Poster Flash Talks
12:40 pm to 02:00 pm	LUNCH BREAK

02:00 pm to 03:40 pm	Interfacial Hydrodynamics I Chair: Abhishek Raj
02:00 pm to 02:20 pm	Impact of soft-gel coated walls on evolution of Faraday waves Dinesh Bhagavatula , <i>IIT (BHU) Varanasi</i>
02:20 pm to 02:40 pm	Marangoni wakes in a viscous fluid Thomas Bickel , <i>Université de Bordeaux</i>
02:40 pm to 03:00 pm	Rayleigh-Bénard-Marangoni Convection in a binary fluid system Anubhav Dubey , <i>Université de Bordeaux</i>
03:00 pm to 03:20 pm	New insights into flow near a moving contact line: resolution of the singularity and role of hysteresis Harish Dixit , <i>IIT Hyderabad</i>
03:20 pm to 03:40 pm	Ribbing and fingering instabilities in liquid entrainment Jean-Philippe Matas , <i>LMFA/UCBL Lyon</i>
03:40 pm to 04:10 pm	COFFEE BREAK and POSTER SESSION
04:10 pm to 05:50 pm	Biophysics & Biofluids I Chair: Susmita Dash
04:10 pm to 04:30 pm	Eukaryotic chemotaxis in the travelling wave of chemoattractant Richa Karmakar , <i>IIT Madras</i>
04:30 pm to 04:50 pm	Towards a universal law for blood flow Chaouqi Misbah , <i>Université Grenoble Alpes</i>
04:50 pm to 05:10 pm	Self-Propulsive Micromotors and their force mechanics Swathi Sudhakar , <i>IIT Madras</i>
05:10 pm to 05:30 pm	Self-organized intracellular flows: computations and coarse-grained theory Brato Chakraborti , <i>ICTS-TIFR</i>
05:30 pm to 05:50 pm	Homeostatic ordering of cells in tissue Shuvrangshu Das , <i>IIT Madras</i>
07:00 pm	Dinner – IITM Alumni Club

Workshop Agenda

Saturday, 26th October 2024

09:00 am to 10:40 am	Colloids & Particle-laden Flows Chair: Shuvrangshu Das
09:00 am to 09:20 am	Rheology and dynamics of suspensions of attractive microcapsules Hugues Bodiguel , <i>Université Grenoble Alpes</i>
09:20 am to 09:40 am	Numerical simulation of clustering of nano particles in aqueous medium Bahni Ray , <i>IIT Delhi</i>
09:40 am to 10:00 am	Brownian motion at interfaces Thomas Salez , <i>Université de Bordeaux</i>
10:00 am to 10:20 pm	Effect of particles on Rayleigh-Benard convection Gaurav Tomar , <i>IISc Bengaluru</i>
10:20 pm to 10:40 pm	Dust in the wind Anubhab Roy , <i>IIT Madras</i>
10:40 am to 11:30 am	COFFEE BREAK and POSTER SESSION

11:30 am to 12:50 pm	Drops & Bubbles II Chair: Harish Dixit
11:30 am to 11:50 am	Prediction of droplet blockage through deformable stenosed microconfinement Abhisek Raj , <i>IIT Patna</i>
11:50 am to 12:10 pm	Levy Walks and Superdiffusion Sathish Akella , <i>IIT Jammu</i>
12:10 pm to 12:30 pm	Non-Newtonian drop impact dynamics on superhydrophobic surfaces Devranjan Samanta , <i>IIT Ropar</i>
12:30 pm to 12:50 pm	Oscillating ultrasonic contrast agents near a deformable wall Pushpavanam Subramaniam , <i>IIT Madras</i>
12:50 pm to 02:00 pm	Lunch Break
2:00 pm to 05:00 pm	Visits of labs
7:00 pm	Cultural Event & Dinner at Holiday Inn

Workshop Agenda

Sunday, 27th October 2024

08:30 am to 10:10 am	Biophysics & Biofluids II Chair: Richa Karmakar
08:30 am to 08:50 am	Dynamics of self-propelling swimmers in complex micro-confinements <i>Ranabir Dey, IIT Hyderabad</i>
08:50 am to 09:10 am	A Bloody Tale <i>Saptarshi Basu, IISc Bengaluru</i>
09:10 am to 09:30 am	Blood on paper <i>Suman Chakraborty, IIT Kharagpur</i>
09:30 am to 09:50 am	The Surging Journal Success of <i>Physics of Fluids</i> <i>Alan Jeffrey Giacomin, Editor-in-Chief, Physics of Fluids & University of Nevada, Reno (online)</i>
09:50 am to 10:10 am	Modelling liquid plugs in the pulmonary airways <i>Georg Dietze, Université Paris-Saclay</i>
10:10 am to 10:40 am	COFFEE BREAK and POSTER SESSION

10:40 am to 12:00 pm	Interfacial Hydrodynamics II Chair: Devranjan Samanta
10:40 am to 11:00 am	Thermo-Electro-Hydrodynamic (TEHD) convection induced by dielectric loss <i>Harunori Yoshikawa, Doshisha University</i>
11:00 am to 11:20 am	Self-Organization of Micro/Nano Plastics <i>Dipankar Bandyopadhyay, IIT Guwahati</i>
11:20 am to 11:40 pm	Falling films on a slippery wall <i>Christian Ruyer-Quil, Université Savoie Mont Blanc</i>
11:40 pm to 12:00 pm	Some Aspects of Contact Line Dynamics <i>Stéphane Zaleski, Université de Sorbonne</i>
12:00 pm to 12:20 pm	Spatio-temporal focussing of surface waves <i>Ratul Dasgupta, IIT Bombay</i>
12:20 pm to 12:30 pm	Closure session
12:30 pm -	Lunch Break & End of Workshop
1.30 pm – 5 pm	Trip to DakshinaChitra Heritage Museum

FLASH TALKS & POSTER PRESENTATIONS

Name	Affiliation	Title
Aayanshu Kumar	IIT Madras	Drop impact on a Superhydrophobic spot surrounded by superhydrophilic region
Aneesh V	IIT Madras	Droplet Impact on Paper Cantilever
Anirban Chatterjee	IIT Roorkee	Interaction of two charged spherical soft-particles with uncharged polymer coating
Anomitra Saha	JNCASR Bengaluru	Acoustophoresis-assisted Fluid Jet Polishing
Anu V S Nath	IIT Madras	A novel particle-induced instability of a simple shear flow
Arnab Choudhury	IIT Delhi	Thermocapillary instability of a surfactant-laden heated falling film
Debasish Ghosh	IIT Madras	Evolution of interfacial instability due to bulk acoustic wave in a microchannel
Harishankar Muppirala	IIT Madras	Generation of waves on a free surface by quadratic shear currents
Harshit Joshi	ICTS-TIFR Bengaluru	Fluttering without wind: Stokesian quasiperiodic settling
Himanshu Mishra	IIT Madras	Orientation dynamics of an anisotropic particle in homogeneous isotropic turbulence and in the presence of an external electric field
Ilies Haouche	Université de Lille	Fluid mechanics for two interfaces
Jatin Saini Rao	IISc Bengaluru	On dynamics of inflating a soap bubble
K. Ghanashyam	IIT Hyderabad	On the fluid dynamics of electrospinning: A novel method to generate stable cone-jet simulations in truncated domain
Kiran Prakash	IIT Madras	Influence of Joule Heating on Capacitance Dynamics in Supercapacitors
Kumaresan Kanimozhi	IIT Madras	Light Scattering in Droplets within Optofluidic Devices: A Ray Optics Simulation Analysis
Lohit Kayal	IIT Bombay	Focusing of concentric free-surface waves
Malyadeep Bhattacharya	IIT Bombay	Consistent wetting boundary condition and solid surface projection-based capillary force calculation scheme for diffuse interface framework



Mansi Singh	IIT Kharagpur	Time-domain motion of a floating or obliquely submerged non-uniform elastic plate
Meraj Khan	IIT Madras	Radiation force and torque on a dielectric Janus particle
Nikhil Yewale	IIT Bombay	Finite amplitude standing water-waves
Prabhash Kumar	IIT Madras	Onset of Chaotic mixing in asynchronous time-periodic Stokes flows
Pulak Roy	IIT Madras	Critical Fluid Shear for Sperm Rheotaxis
Sainath H	IIT Madras	Sedimentation and adhesion of red blood cells to a solid surface
Sangamesh Gudda	JNCASR Bengaluru	The orientation dynamics of a massive ellipsoid in simple shear flow
Sarita Yadav	MNNIT Jaipur	Electrohydrodynamic stability of a two-layer Poiseuille flow in the presence of interfacial surfactant: an asymptotic analysis
Shraddha Mandloi	IIT Madras	Instability of a dusty vortex
Shravya Gundavarapu	IIT Madras	Evidence of an inertialess Kapitza instability due to viscosity stratification
Shri Vignesh Kathiresan	IIT Madras	Extremely high clustering among droplets in turbulence at the dissipative scales
Siddhant Jain	IISc Bengaluru	Shear Stresses Alter Bacterial Physiology
Sourabh Dhawan	IIT Kanpur	Pore scale simulations of thinning-elastic fluids within idealized porous media
Srikumar Warriar	IIT Madras	Collision rate of like-charged aerosol particles in a uniaxial compressional flow
Sruthi Kumar	IIT Madras	Droplet Impact on Curved Surface with relevance to eye drop administration on the human eye
Subhas Nandy	IIT Madras	Particle focusing in a microfluidic cavity
Swarnaditya Hazra	IIT Bombay	Dynamics of mucus films in ciliated lung airways
T Sujith	IIT Madras	Acoustic field and particle transport in a viscoelastic fluid
Venkata Sai Anvesh Sangadi	IIT Hyderabad	A solution to the moving contact line problem using the Lightning Stokes solver
Vinod Vanarse	IIT Guwahati	Curvature, Flow, and Miniaturization: A Nematic Droplet's Journey on Water

