

International Research Network WORKSHOP IISc Bangalore



Contacts

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

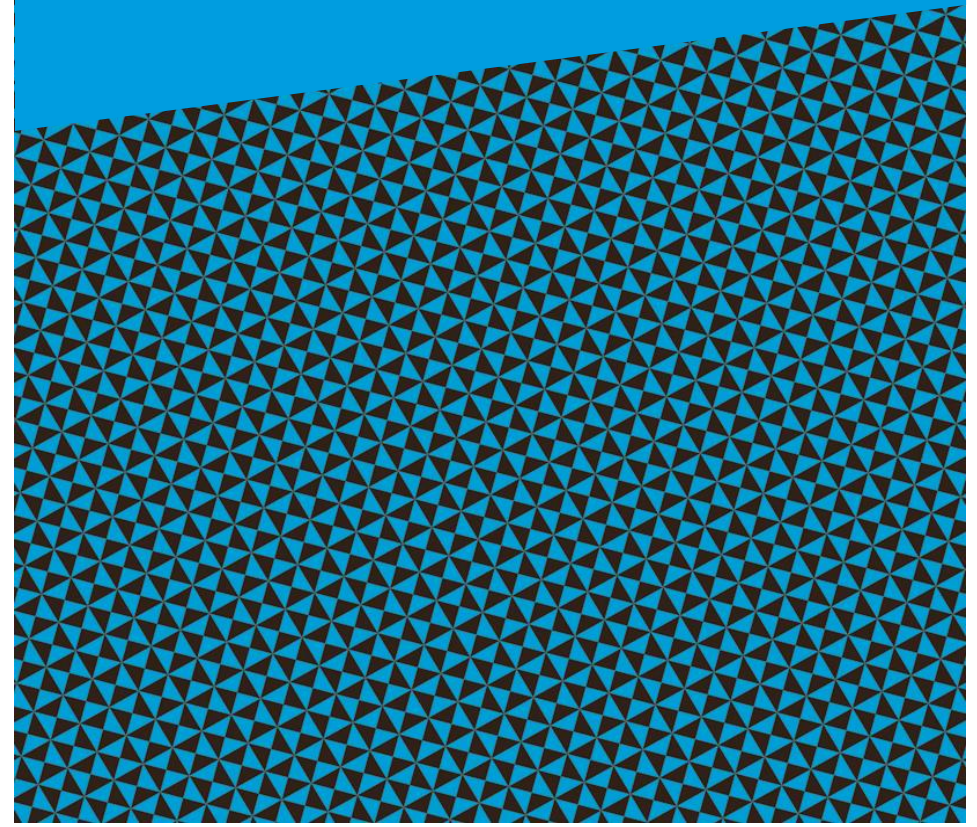
Prof. Suman Chakraborty
IIT Kharagpur
suman@mech.iitkgp.ac.in

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

Workshop

Hydrodynamics at small scales: from soft matter to bioengineering

October 17-19, 2022
IISc, AR Auditorium
Bangalore (INDIA)



Workshop Agenda

Monday, 17th Oct 2022

8:30 am to 8:45 am	Opening ceremonies: Welcome address by organizers, a few words from the Dean of Mechanical Sciences, IISc.
8:45 am to 09:45 am	Presentations from French Embassy, CNRS, Cefipra CHAIR : S. Amiroudine
8:45 am to 9:00 am	Speech of the French Consulate (Thierry Berthelot)
9:00 am to 9:15 am	French research strategy in India and the main tools (François-Xavier Mortreuil)
9:15 am to 9:30 am	CEFIPRA's Indo-French Joint Research Opportunities (Nitin Seth, Director of CEFIPRA)
9:30 am to 9:45 am	INSIS and its international strategy and more specifically, the collaborations with India (Olga Allard)
9:45 am to 10:00 am	Research Opportunities in EU, France and CNRS (Srini Kaveri)
10:00 am to 10:45 am	COFFEE BREAK
10:45 am to 12:00 am	Presentations of industrial partners CHAIR: S. Chakraborty
10:45 am to 11:00 am	Elveflow Microfluidics - high performance pressure & flow control (Sebastian Raja)
11:00 am to 11:15 am	Rapid advances in point-of-care testing through microfluidic technologies, in a post-COVID world (Dhananjaya Dendukuri, Achira Labs)
11:15 am to 11:30 am	Progress and Directions in "Industrial-Strength" Computational Fluid Dynamics and its Relevance to the Research Community, (Abhimanyu Singh, ANSYS)
11:30 am to 11:45 am	Title to come... (Shauvik De, SHELL)
11:45 am to 12:00 pm	Lattice Boltzmann Method: A New Paradigm for Multi-Physics Simulations (Vinay Kariwala, Sankhyasutra Labs)

12:00 pm to 02:00 pm	LUNCH BREAK
02:00 pm to 03:20 pm	Hydrodynamics, CHAIR: G. Biswas
02:00 pm to 02:20 pm	Microfluidic coflow systems exposed to bulk acoustic waves (<u>Ashis Kumar Sen</u> , E Hemachandran, and Sazid Zamal Hoque), IIT Madras, India
02:20 pm to 02:40 pm	The Yoga of Droplets, <u>Aloke Kumar</u>
02:40 pm to 03:00 pm	Hydrodynamics of Electrohydrodynamic Atomization Archana Gupta, Bal Kishen Mishra and <u>P. K. Panigrahi</u> , Mechanical Engineering Department, IIT Kanpur, India
03:00 pm to 03:20 pm	Edge-based Front Tracking: a new method for tracking interfaces, <u>Stéphane Zaleski</u> , and <u>Léonardo Chirco</u> , Sorbonne Université and CNRS, Institut Jean Le Rond d'Alembert, France
03:20 pm to 04:00 pm	Coffee Break and Poster Presentations
04:00 pm to 05:20 pm	Hydrodynamics, CHAIR: S. Zaleski
04:00 pm to 04:20 pm	Exact solutions for viscous Marangoni spreading of insoluble surfactants, Thomas Bickel and François Detcheverry
04:20 pm to 04:40 pm	Modeling of Gas flow at finite Knudsen number, Santosh Ansumali
04:40 pm to 05:00 pm	Interfacial tension playing role in cleaning oil spills from ocean, <u>Bahni Ray</u> and Ghulam Rabbani
05:00 pm to 05:20 pm	Dynamics of Evolving Jets during Drop Impact on a Deep Liquid Pool, Santanu Kumar Das, Amaresh Dalal and <u>Gautam Biswas</u>
06:30-8:00 pm	Reception offered by the French Institute in India and the Consulate General of France in Bangalore

Workshop Agenda

Tuesday, 18th Oct 2022

9:00 am to 10:20 pm	Biophysics and Bioengineering <u>CHAIR</u> : F.S. Godefert
9:00 am to 9:20 am	Blood Flow and Biochemical Signaling, <u>Chaouqi Misbah</u> , Mehdi Abbasi, Zhe Gou, Ananta Nayak, Priti Kumari Sinha, Sovan Lal Das
9:20 am to 9:40 am	Effect of reduced shear stress on endothelial cell, Mehdi Inglebert, <u>Kumari Priti Sinha</u> , Lionel Bureau and Chaouqi Misbah
9:40 am to 10:00 am	FLUIDYN - Numerical Multiphysics for assessing medical intervention (Sharad Tripathi)
10:00 am to 10:20 am	Two examples of flows forced by acoustics or by light beam, <u>Philippe Brunet</u> , Julien Dervaux, Laurent Royon, Xiaofeng Guo, Aina Ramamonjy, Chuanyu Zhang, Geyu Zhong, Zhuo Ma
10:20 am to 11:00 am	Coffee Break and Poster Presentations
11:00 am to 12:20 pm	Biophysics and Bioengineering, <u>CHAIR</u> : C. Misbah
11:00 am to 11:20 am	Stretched vesicles transport uniquely across constricted microfluidic pathways, Tanoy Kahali, Devi Prasad Panigrahi, and <u>Suman Chakraborty</u>

11:20 am to 11:40 am	In silico experiments modelling disendothelization in an axisymmetric idealized artery, with application to intimal hyperplasia development Fabien, J. Jansen, X. Escriva, <u>F.S. Godefert</u> and P. Feugier
11:40 am to 12:00 am	Droplet breakup and size distribution of satellite fragments under a swirl airstream, Someshwar Sanjay Ade, Pavan Kumar Kirar, Lakshmana Dora Chandrala and <u>Kirti Chandra Sahu</u>
12:00 pm to 12:20 am	Spontaneous shell formation during gelation by membrane-free osmosis, E. Guilbert, C. De Loubens, A. Vilotte and <u>H. Bodiguel</u>
12:20 am to 12:40 am	Numerical simulations of Deforming Capsules, Kiran Satheesh and <u>Gaurav Tomar</u>
12:30 pm to 02:00 pm	Lunch Break
2:00 pm to 05:00 pm	Visits of 2 labs: bioengineering and mechanical engineering (G. Tomar)
06:30 pm to 07:30 pm	Live 'KATHAK' classical dance
7:30 pm	Gala Dinner

Wednesday, 19th Oct 2022

9:00 am to 10:30 am	Hydrodynamics CHAIR: Rochish Thaokar
09:00 am to 09:20 am	Evaporation-based Detection of Adulterants in Milk, Susmita Dash
09:20 am to 09:40 am	Coupled electrohydrodynamic transport in rough fractures: a generalized lubrication theory Mainendra K. Dewangan, Uddipta Ghosh , Tanguy LeBorgne and Yves Meheust
9:40 am to 10:00 am	Use of patch-clamp for the investigation of the interaction force between particles and substrate, A. Ipatova, E. Zoueshtiagh , A. Duchesn, M. Deleplace, C. Faille, C. leroy, H. Yoshikawa, P. Mariot
10:00 am to 10:20 am	Onset characteristics of Rayleigh–Benard–Marangoni convection in confined silicone oil - water systems, S Venkatesan Diwakar
10:20 am to 11:00 am	Coffee Break and Poster Presentations
11:00 am to 12:00 pm	Hydrodynamics CHAIR: Ashis Kumar Sen

11:00 am to 11:20 am	Predictions of Charge and Mass Loss During the Breakup of Critically and Subcritically Charged Droplets, Rochish Thaokar , Neha Gawande, Mohit Singh and Y.S. Mayya
11:20 am to 11:40 pm	Shock-droplet interactions, Saptarshi Basu
11:40 pm to 12:00 pm	Phase transition of miscible/immiscible binary fluids with the phase field approach, M. Bestehorn, D. Sharma, R. Borcia, S. Amiroudine
12:00 pm to 2:00 pm	Lunch Break
2:00 pm to 4:00 pm	Round table : discussions
4:00 pm	End of the workshop