12th Conference of the International Marangoni Association
9–12 June 2025, Madrid, Spain
https://www.nebrija.com/nebrija-IMA12/

Scientific program

Monday, June 9

9:00–9:45 Registration

9:45–10:00 Opening ceremony

10:00–11:00 Evaporation and condensation (*Chair: Sakir Amiroudine*)

10:00–10:15 Fei Duan
Noncircular deposition from sessile droplet phase change on patterned substrates

10:15–10:30 Raphael Saiseau
Near-critical spreading and evaporation of droplets

10:30–10:45 Ze Xu
Vapor-mediated wetting and imbibition control on micropatterned surfaces

10:45–11:00 Parimalanathan Senthil Kumar
Effect of substrate topography on evaporating films

11:00–11:30 Coffee break

11:30–13:00 Phase field and multiphase systems (*Chair: Marc Medale*)

11:30–11:45 Sakir Amiroudine
Compressible phase field model for investigating bubble rise near the liquid-vapor critical point

11:45–12:00 Dominika Zabiegaj
Using a hybrid porous materials of a new generation in water purification process

12:00–12:15 Michael Bestehorn
Faraday instability of an isothermal binary mixture described by a phase field

12:15–12:30 Yoav Tsori
Electrolubrication and giant slip in flowing liquid mixtures

12:30–12:45 Samuel Cameron
Kinetic theory of coupled binary-fluid surfactant system

12:45–14:15 Lunch

14:15–15:45 Surfactants and particle suspensions I (*Chair: Fei Duan*)

14:15–14:30 Alexander Nepomnyashchy
Transition to the stagnant cap regime in the system of a solid particle and a bubble covered by insoluble surfactant

14:30–14:45 Juan Manuel López
Super diffusivity resolves anomalies in monolayer dilatation

14:45–15:00 Fernando Temprano-Coleto
Self-similarity in the viscous Marangoni spreading of surfactant on a deep subphase

15:00–15:15 Raj Gandhi
Thermosolutal instabilities in a moderately dense nanoparticle suspension: Effect of interfacial nanoparticle kinetics

15:15–15:30 Prabhash Kumar
Asynchrony-driven chaotic mixing in two-dimensional viscous flows

15:30–15:45 Yotam Stern
Self-lubricated spreading of surfactant-laden droplets

15:45–16:15 Coffee break

16:15–17:00 Instabilities (*Chair: Philippe Beltrame*)

16:15–16:30 Antonio Roberto Piriz
Model for the nonlinear Rayleigh-Taylor instability in ideal media

16:30–16:45 Sakir Amiroudine
Rayleigh-Taylor instability in binary fluids with miscibility gap

16:45–17:00 Matthieu Rykner
Convective-absolute and dripping-jetting transitions in core-annular flow within fuel cells

From 17:00 Welcome & Churros

Tuesday, June 10

9:00–10:15 Vibrated systems (*Chair: Satish Kumar*)

9:00–9:15 Ofer Manor
Boundary layer flow induced electrokinetic effects at the glass/electrolyte and (piezoelectric) lithium niobate/electrolyte interfaces under the excitation of a mega-Hertz-level mechanical wave in the solid substrates

9:15–9:30 Rodica Borcia
Drop behavior on a heterogeneous ratchet–structured substrate vibrated harmonically in lateral direction

9:30–9:45 Alexander Mikishev
Faraday waves at the surfactant-covered free surface of the vertically vibrated non-isothermal liquid

9:45–10:00 Seymen İlke Kaykanat
Translational instability of an oscillating bubble under the effect of an acoustic field

10:00–10:15 Jinan Parathi
Surface acoustic wave (SAW) streaming through porous media

10:15–10:45 Coffee break

10:45–11:15 Vibrated systems (*Chair: Satish Kumar*)

10:45–11:00 Ion Dan Borcia
Free-surface flows in a water filled parametrically excited circular channel with a submerged hill

11:00–11:15 Igin Benny Ignatius
Resonance-induced stabilization of Marangoni instability in viscoelastic fluids

11:15–12:15 Solid-liquid phase change I (*Chair: Pablo Salgado*)

11:15–11:30 Jeff Porter
The combined effect of natural and thermocapillary convection on the melting of PCMs in rectangular and cylindrical domains

11:30–11:45 Fikret Alic
Flexible microfluidic thermal emitter - Irreversibility analysis

11:45–12:00 Keyur Kansara
Innovative dual-thermocapillary-enhanced-PCM strategy for energy storage in space applications

12:00–12:15 Úrsula Martínez
Design, testing, and initial ground results of the “Effect of Marangoni Convection on Heat Transfer in Phase Change Materials” experiment

12:15–13:45 Lunch

13:45–15:15 Films and waves (*Chair: Uwe Thiele*)

13:45–14:00 Lou Kondic
Laser heating and melting of metals on nanoscale: breakup of metal filaments & thermal crowding

14:00–14:15 Uwe Harlander
On the influence of the heat transfer at the free surface of a thermally-driven rotating annulus

14:15–14:30 Samantha McBride
Cascading sawtooth patterns from evaporating salt-surfactant thin films

14:30–14:45 Philippe Beltrame
Free surface flows over and inside a porous microtube

14:45–15:00 Omair A. A. Mohamed
Reduced equations for a thin liquid film subjected to solar radiation

15:00–15:15 Ratul Dasgupta
Parasitic capillary ripples on finite amplitude surface waves

15:15–15:45 Coffee break

15:45–17:00 Thermocapillarity and thermal effects (*Chair: Ofer Manor*)

15:45–16:00 Mengsen Zhang
Manipulation of particle deposition of inkjet-printed droplets with the combined effects of concentration and temperature Marangoni flows

16:00–16:15 Jorge César Brändle de Motta
Numerical study of Marangoni instability: effect of interface deformation

16:15–16:30 Shin Noguchi
Experimental study on the twisted patterns of coherent structure formed by low-Stokes-number particles in a concave liquid bridge

16:30–16:45 Yao Xiao
Thermocapillary effects on the migration, reverse-encapsulation, and core-release dynamics of compound droplets

16:45–17:00 Alexander Babich
Solutal and thermal Marangoni convection at growing oxygen bubbles during water electrolysis

From 19:30 Gala Dinner

Wednesday, June 11

9:00–10:15 Surfactants and particle suspensions II (*Chair: Alexander Nepomnyahchy*)

9:00–9:15 Demetrios T. Papageorgiou
Using light-actuated photosurfactants for liquid mixing and sculpting

9:15–9:30 Paolo Luzzatto-Fegiz
Modeling Marangoni flows induced by photo-responsive surfactants

9:30–9:45 Olga Lavrenteva
Shear-induced particles migration in multi-disperse concentrated suspensions

9:45–10:00 Farzam Zoueshtiagh
Air bubble entrapment beneath micrometric particles upon immersion

10:00–10:15 Sho Shidomi
Particle-particle interaction against stable formation of coherent structures in a stable travelling flow

10:15–10:45 Poster session (*Chair: Roberto Piriz*)

10:15–10:18 Sofía Ayelén Piriz
Rayleigh-Taylor instability in an elastic slab bounded by a rigid wall

10:18–10:21 Chaima Nasri
Modeling surfactant flow and surface tension modulations in foam dynamics

10:21–10:24 Guillermo Lorite Méndez
Visualization of thermocapillary flows in water sessile droplets under different heating conditions

10:24–10:27 Abhay Ghuge
Concrete lightweight materials: Global Engineering Challenges

10:27–10:30 Francisco Cobos
Characterization of the compressible phase in Richtmyer-Meshkov instability

10:30–10:33 Igin Benny Ignatius
Reduced-order modeling of heated falling films

10:33–10:36 Sara Pineda
Influence of ambient temperature in the heat transfer rate of an organic phase change material

10:36–10:39 Daniel Gomez-Lendinez
Numerical study of polylactic acid extrusion in FDM 3D printing

10:39–10:42 Daniel Gomez-Lendinez
Analysis of phase change materials for passenger comfort in vehicles

10:42–10:45 Daniel Gomez-Lendinez
Numerical analysis of gas flow in DED printing process

10:45–11:15 Coffee break

11:15–12:45 Droplet dynamics and wetting (*Chair: Michael Bestehorn*)

11:15–11:30 Satish Kumar
Pinning–depinning transition of droplets on inclined substrates with a three-dimensional topographical defect

11:30–11:45 Uwe Thiele
Chemo-mechanical coupling in sessile drops covered by reactive surfactants — from simple self-propulsion to irregular motion

11:45–12:00 Marc Medale
The partial wetting problem revisited to account for large Bond numbers

12:00–12:15 Ranabir Dey
Emergence of run-and-tumble-like swimming in self-propelling active droplets in soft microchannels

12:15–12:30 Lokendra Mohan Sharma
Characterizing droplet evolution in liquid-liquid systems: a quantitative approach

12:30–12:45 Malay Vyas
Dynamics of compound polymeric droplet in viscoelastic extensional flow

12:45–13:30 Lunch

From 13:30 Excursion to Toledo

Thursday, June 12

9:00–10:15 Microgravity (*Chair: Alexander Mikishev*)

9:00–9:15 Mihai Boni
Study of binary water droplet coalescence in microgravity

9:15–9:30 Pablo Salgado Sánchez
Controlling the dynamics of a free surface in microgravity via thermocapillary flows

9:30–9:45 Taishi Yano
Tomographic reconstruction of m = 1 PAS in a thermocapillary liquid bridge formed in space experiment

9:45–10:00 Peru Fernandez Arroiabe
Interplay between Marangoni effect and buoyancy in absorption process

10:00–10:15 Pablo Salgado Sánchez
Sloshing reduction in microgravity using thermocapillary flows and passive baffles

10:15–10:45 Coffee break

10:45–11:30 Solid-liquid phase change II (*Chair: Rodica Borcia*)

10:45–11:00 Jeff Porter
Accelerating the melting of PCMs via convective flows and optimal container design

11:00–11:15 Keyur Kansara
On the gravity and orientation driven thermal convection dynamics during the melting of phase change material

11:15–11:30 Úrsula Martínez
Thermocapillary effects during the melting of phase change materials subjected to isothermal or heat flux boundary conditions

11:30–12:00 Surfactants and drops II (*Chair: Rodica Borcia*)

11:30–11:45 Peter Lebedev-Stepanov
Analytical study of the structure of hydrodynamic flows and heat transfer in a sessile aqueous evaporating droplet

11:45–12:00 Alexander Oron
Thermosolutal instabilities in a moderately dense nanoparticle suspension: effect of thermal conductivity stratification

12:00–12:15 Closing remarks

12:15–12:45 Farewell coffee