



UNIVERSITÀ
DEGLI STUDI
DELL'AQUILA

G S GRAN SASSO
S I SCIENCE INSTITUTE
SCHOOL OF ADVANCED STUDIES
Scuola Universitaria Superiore

PROGRAMME



July^{6th} - 10th
2026

under the patronage of



DIIE
Dipartimento di Ingegneria
Industriale e dell'Informazione
e di Economia

7 JULY

Room1 Auditorium

09:00 Helen Wilson — plenary (Chair: *Luca Biancofiore*)

SESSION: Classical Hydrodynamic Instabilities Chair: *François Gallaire*

10:00 **Simone Camarri**-Stability of laminar boundary layers over flat plates with spanwise-periodic surface modulations

10:15 **Riccardo Casali**-Flow stability in helical pipes

10:30 **Ilias Sibgatullin**-Multistability effects in internal wave modes and wave attractor regimes in stratified fluids

10:45 **Mathis Flouquet**-Bifurcations in rapidly rotating spherical shell convection

11:00 Coffee break

SESSION: Classical Hydrodynamic Instabilities Chair: *Simone Camarri*

11:30 **François Gallaire**-Weakly nonlinear resolvent analysis in an axisymmetric sudden expansion

11:45 **Laurent Martin Witkowski**-Influence of free-surface deformation on the stability of a flow driven by a rotating disk

12:00 **Juan Pimienta**-Low frequency phenomena in shear flows: an experimental approach

12:15 **Mehdi Riahi**-Neimark--Sacker bifurcations in viscoelastic time-modulated Taylor--Couette flow

12:30 Lunch

14:00 Eckart Meiburg — plenary (Chair: *François Gallaire*)

SESSION: Classical Hydrodynamic Instabilities Chair: *Miguel Fosas de Pando*

15:00 **Benoît Pier**-Linear instability of modulated Taylor--Couette flow

15:15 **Timothee Salamon**-Spontaneous symmetry breaking in a triple inlet channel

15:30 **Shruti Pandey**-Depletion layers, apparent slip, and the polymer diffusive instability

15:45 **Pulakhandam Sri Dana Surya Phani Tej**-Transition in elastic Dean flow: the centre-mode versus hoop-stress pathways

16:00 **Ajay Sharma**-Instability and bifurcation characteristics of slip channel flow in the fluid-porous interfacial system

16:30 Coffee break

SESSION: Transition to Turbulence Chair: *Elena Marensi*

17:00 **Hamood Ur Rahman**-Mach-number sensitivity of particle dynamics in compressible turbulent channel flow

17:15 **Bo Yuan**-Small-scale secondary instability of nonlinearly distorted flow in the pipe entrance region

17:30 **Marios Mastrokalos**-Optimization of flow coefficients in stabilized turbulent flow past a rotating cylinder for Flettner rotor marine applications

7 JULY

Room2

Ipogea

SESSION: Interfacial and Small-Scale Flows Chair: *Omair Mohamed*

- 10:00 **Marc Medale**-Partial wetting on non-ideal solid substrates and large Bond numbers
- 10:15 **Conor Quigley**-Rigorous validation of contact-line simulations using OpenFOAM
- 10:30 **Blessing Nansubuga**-Validity of approximate models for ion permeabilities in biological nanopores
- 10:45 **Ruiheng Hu**-Contact angle hysteresis on slippery micropatterned biphilic liquid-like surfaces
- 11:00 **Coffee break**

SESSION: Interfacial and Small-Scale Flows Chair: *Marc Medale*

- 11:30 **Alexander Mikishev**-Impact of vertical vibration on the long-wave Marangoni convection
- 11:45 **Jemimah Magit**-Cold droplet impact on a heated liquid film: coupled cavity dynamics and thermal mixing
- 12:00 **Elisa Bellantoni**-Immersed boundary-lattice Boltzmann method for wetting problems
- 12:15 **Jean-Philippe Matas**-Axial instability in inertial liquid entrainment by a rotating drum
- 12:30 **Lunch**

SESSION: Multiphase Flows Chair: *Nikos Savva*

- 15:00 **Sakir Amiroudine**-Dynamics of bubble rise near the liquid-vapor critical point via compressible phase-field model
- 15:15 **Edson Orati Da Silva**-Stability analysis of dense-gas/liquid annular two-phase flow with liquid entrainment
- 15:30 **Giuseppe Arnone**-Prediction of dryout inception for boiling CO₂ in pipe flows
- 15:45 **Pedro José Miranda Lugo**-Downward dense-gas/liquid pipe flow: experimental characterization and linear stability analysis
- 16:00 **Matteo Chiatto**-Two-phase simulation of particle dynamics in a t-junction microchannel flow
- 16:30 **Coffee break**

SESSION: MS: Metastability and Phase Change Chair: *Mirko Gallo*

- 17:00 **Keynote: Shigeru Takata**-H theorem of the Enskog-Vlasov equation: kinetic theory approach for phase change
- 17:15 **Keynote: Shigeru Takata**-H theorem of the Enskog-Vlasov equation: kinetic theory approach for phase change
- 17:30 **Eugene Benilov**-Supercooling of liquids, as described by the Enskog-Vlasov kinetic equation
- 17:45 **Mayank Maroliya**-Thermal bifurcation and phase-lag instabilities in solid-solid phase change materials under transient heat loading
- 18:00 **Lucile Bisquert**-Collective effects in the phase change of falling raindrops

7 JULY

Room3 Main lecture hall

SESSION: Fluid-Structure Interaction Chair: *Sebastian Aland*

- 10:00 **Lingchu Xi**-Direct numerical simulation of skin-friction reduction using steady blowing through spanwise slits
- 10:15 **Eunok Yim**-Mechanics of pump foiling
- 10:30 **Bálint Nagy**-Dynamics of a fluttering plate in decaying isotropic turbulence
- 10:45 **Edouard Boujo**-Inertialess sedimentation of porous disks
- 11:00 Coffee break

SESSION: MS: Asymptotics meets Numerics in non-Newtonian Flows Chair: *Humayun Ahmed*

- 11:30 **Keynote: Evgeniy Boyko**-Understanding the long-standing puzzle of theory--experiment discrepancy in pressure drop of dilute viscoelastic fluids in channel flows
- 11:45 **Keynote: Evgeniy Boyko**-Understanding the long-standing puzzle of theory--experiment discrepancy in pressure drop of dilute viscoelastic fluids in channel flows
- 12:00 **Ron Lottem**-Radial flow of viscoelastic fluids between parallel plates
- 12:15 **Deniz Kaplan**-Viscoelastic flow in a textured plane slider channel
- 12:30 Lunch

SESSION: MS: Asymptotics meets Numerics in non-Newtonian Flows Chair: *Evgeniy Boyko*

- 15:00 **Humayun Ahmed**-Viscoelasticity in confined thin film squeeze flow
- 15:15 **Christian Utreras Silva**-Analysis of viscoelastic fluid effects over trenced textured surface
- 15:30 **Aashay Harshit**-Instability and transition mechanisms in viscoelastic shear flows
- 15:45 **Shoaib Kamil**-Scaling the transition threshold of EIT
- 16:00 **Yusuf Alperen Degirmenci**-Elastic instability in a micro-serpentine channel at low Reynolds numbers
- 16:15 **Igino Foglia**-Electrohydrodynamics of viscoelastic sessile droplets: subcritical deformation and critical electric field thresholds
- 16:30 Coffee break

SESSION: MS: Asymptotics meets Numerics in non-Newtonian Flows Chair: *Helen Wilson*

- 17:00 **Salvatore Cito**-Ionic-strength-dependent hydrodynamic resistance in non-Newtonian fluids: implications for CO₂ bubble dissolution dynamics
- 17:15 **Yudhvir Singh Yadav**-Viscoelastic sub-diffusive channel flow in a transverse magnetic field
- 17:30 **Henry Broadley**-Symmetry breaking in viscoelastic flows past cylinder arrays
- 17:45 **Xueruo He**-On the streaky instability of shear-thinning flow in a corrugated tube
- 18:00 **Luca Santelli**-SPH-based analysis of integral fractional K-BKZ viscoelastic models



SOLUTION

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