



## ACCADEMIA NAZIONALE DEI LINCEI

CENTRO LINCEO INTERDISCIPLINARE «BENIAMINO SEGRE»

---

# NEW DIRECTIONS IN COMPLEX FLOWS

9-10 October, 2025

*Organizing Committee:* Luca Biferale (University of Rome “Tor Vergata” and INFN), Michele Buzzicotti (University of Rome “Tor Vergata” and INFN), Massimo Cencini (CNR ISC and INFN), Alessandra S. Lanotte (CNR NANOTEC and INFN), Miguel Onorato (Università of Turin, coordinator), Renzo Piva (Lincei, University of Rome “Sapienza”), Mauro Sbragaglia (University of Rome “Tor Vergata” and INFN)

### PROGRAMME

**Thursday the 9th**

**1<sup>st</sup> Session**

## OUT-OF-EQUILIBRIUM STATISTICAL MECHANICS OF COMPLEX FLUIDS AND TURBULENCE

- 9.00 Registration
- 9.30 Michele CILIBERTO (Director of the Centro Linceo and SNS, Pisa): *Opening address*
- 9.40 Roberto BENZI (University of Rome “Tor Vergata”): *The distribution of inter-event times in avalanche dynamics*
- 10.00 Antonio CELANI (ICTP): *Decoding behavior*
- 10.20 Alexei MAILYBAEV (IMPA): *Spontaneous stochasticity and renormalization group*
- 10.40 **Coffee break**
- 11.10 Giovanni GALLAVOTTI (Lincei fellow, University of Rome “Sapienza”): *Fluid friction and irreversibility*
- 11.30 Rainer GRAUER (Ruhr-Universität Bochum): *Is the instanton calculus useful for understanding turbulence?*
- 11.50 Chiara CALASCIBETTA (Université Côte-d'Azur): *Optimal strategies to catch a drifting target in turbulence*
- 12.10 Moritz LINKMANN (University of Edinburgh): *The physics of the energy cascade in magnetohydrodynamic turbulence*

12.30 Guido BOFFETTA (University of Turin): *Turbulent sedimentation of finite-size particles: a new form of convection*

12.50 **End of the session**

## **2<sup>nd</sup> Session Session**

### **NEW CHALLENGES IN COMPLEX FLUIDS AND TURBULENCE: FROM PASSIVE TRANSPORT TO ACTIVE MATTER**

14.30 Uriel FRISCH (Côte d'Azur Observatory): *T.B.A.*

14.50 Jérémie Bec (Université Côte-d'Azur): *Eulerian vs. Lagrangian intermittency in homogeneous isotropic turbulence*

15.10 Achim WIRTH (Université Grenoble Alpes): *Turbulent air-sea interaction*

15.30 Angelo VULPIANI (University of Rome "Sapienza"): *The real butterfly effect: from mathematics to physics*

15.50 **Coffee break**

16.20 Minping WAN (SUSTech): *Reconstruction of turbulent boundary layer flows: from physical modeling to machine learning*

16.40 Patricio CLARK DI LEONI (Universidad de San Andres): *Estimating dimensionality in turbulent flows*

17.00 Andrea SCAGLIARINI (CNR-IAC, Rome): *Forced active suspensions: hydrodynamics and confinement matter*

17.20 Itamar PROCACCIA (Weizmann Institute of Science): *Dipole induced topological transition in three-dimensional amorphous solids*

17.40 **End of the session**

## **Friday the 10th**

### **3<sup>rd</sup> Session**

### **FROM DATA TO MODELS FOR COMPLEX FLUIDS AND TURBULENCE**

9.30 Charles MENEVEAU (Johns Hopkins University): *A Lagrangian Interpretation of the Fluctuation Relation in Isotropic Turbulence*

9.50 Federico TOSCHI (Technical University of Eindhoven): *Turbulence in odd fluids*

10.10 Alexandros ALEXAKIS (ENS-Paris): *How far does turbulence spread?*

10.30 **Coffee break**

11.00 Roberto VERZICCO (University of Rome "Tor Vergata"): *Effects of turbulence in cardiovascular flows*

- 11.20 Stefano MUSACCHIO (University of Turin): *Transition to the buoyancy-dominated regime in a planar temporal forced plume*
- 11.40 Kristian GUSTAVSSON (University of Gotheborg): *Transport barriers for microswimmers in unsteady flow*
- 12.00 Carlo M. CASCIOLA (University of Rome "Sapienza"): *On the dynamics of liquid/vapor phase change*
- 12.20 Detlef LOHSE (University of Twente): *Melting & tipping: From the lab to the ocean*
- 12.40 Giorgio PARISI (Lincei President Emeritus, University of Rome "Sapienza"): *Closing remarks*
- 13.00 **Conclusion of the conference**

ROMA - PALAZZO CORSINI - VIA DELLA LUNGARA, 10

Segreteria del convegno: [centrolinceo@lincei.it](mailto:centrolinceo@lincei.it)

Tutte le informazioni per partecipare al convegno sono disponibili su:

<https://www.lincei.it/it/manifestazioni/new-directions-complex-flows>

Per partecipare al convegno è necessaria l'iscrizione online tramite il presente

>>[LINK](#)<<

o tramite codice QR



Fino alle ore 10 è possibile l'accesso anche da Lungotevere della Farnesina, 10

I lavori potranno essere seguiti dal pubblico anche in streaming

L'attestato di partecipazione al convegno viene rilasciato esclusivamente a seguito di partecipazione in presenza fisica e deve essere richiesto al personale preposto in anticamera nello stesso giorno di svolgimento del convegno

Il workshop è organizzato anche con il contributo del MUR - Ministry of Education, Universities and Research | Programme: PRIN 2022 PNRR | Funding Scheme "PRIN 2022 Settore ERC: PE8" Progetto BREAKUP - P20225AEF4 E il contributo di ERC and Università di Roma "Tor Vergata"

