

Chaotic Flows in Polymer Solutions

Monday 6 – Friday 10 January 2025

The programme is subject to change. All times are Greenwich Mean Time (GMT).

MONDAY 6 JANUARY	
10.00 - 10.30	Registration and Refreshments
10.30 - 10.45	Welcome and Housekeeping
10.45 - 11.30	Outi Tammsola , KTH Royal Institute of Technology Three-dimensional wake instability and turbulence in viscoelastic fluids
11.30 - 12.15	Bamin Khomami , University of Tennessee-Knoxville Polymer Induced Phenomena in Taylor-Couette Flow: From Purely Elastic Turbulence to Asymptotic Drag Limits
12.15 - 13.30	Lunch
13.30 - 14.15	Stavroula Balabani , UCL Elastoinertia transitions in Taylor Couette flows
14.15 - 15.00	Christopher Browne , University of Pennsylvania Harnessing Elastic Instabilities for Enhanced Mixing and Reaction Kinetics in Porous Media
15.00 - 15.30	Refreshments
15.30 - 16.15	Vatsal Sanjay , University of Twente Can polymeric flows be the Drosophila for unsteady continuum mechanics?
16.15 - 17.00	Jack King , University of Manchester The evolution of uncertainty in elastic turbulence
17.30	Welcome Reception, hosted at ICMS

TUESDAY 7 JANUARY	
09.30 - 10.15	Victor Steinberg , Weizmann Institute of Science Stochastic resonance in inertia-less viscoelastic channel flow
10.15 - 10.45	Refreshments
10.45 - 11.30	Mike Graham , University of Wisconsin-Madison Self-similar structure in channel-flow elastoinertial turbulence
11.30 - 12.15	Rich Kerswell , Cambridge University The 'arrowhead' coherent structure: present, past and future
12.15 - 13.30	Lunch
13.30 - 14.15	Paulo Arratia , University of Pennsylvania Structure & dynamics of purely elastic instabilities in channel flows using microfluidic devices
14.15 - 15.00	Andrew Clark , SLB Cambridge Research Material properties for application of elastic turbulence
15.00 - 15.30	Refreshments and Poster Session
15.30 - 16.15	John Hinch , DAMTP, Cambridge University Oldroyd B, and not A?
16.15 - 17.00	Anke Lindner , PMMH-ESPCI Flow Patterns in Microfluidic Pillar Arrays: Impacts on Polymer Dynamics
17.00 - 17.45	Mengqi Zhang , National University of Singapore Shear-thinning: stabilising or destabilising time-periodic flows? A Floquet analysis of Stokes layers in Carreau fluids

WEDNESDAY 8 JANUARY	
09.30 - 10.15	Li Xi , McMaster University Automated vortex analysis through axis-line extraction: Application in Newtonian and viscoelastic turbulence
10.15 - 10.45	Refreshments
10.45 - 11.30	Sandra Lerouge , University Paris Cité Purely elastic turbulence in von Karman swirling flow of viscoelastic solutions
11.30 - 12.15	Viswanathan Shankar , Indian Institute of Technology Kanpur Revisiting the role of diffusion on the stability of viscoelastic shear flows
12.15 - 13.30	Lunch
13.30 - 14.15	Björn Hof , Institute of Science and Technology Austria Title TBC
14.15 - 15.00	Yves Dubief , University of Vermont Large and Small Scales in Elasto-Inertial Turbulence
15.00 - 15.30	Refreshments
15.30 - 16.15	Jonathan Rothstein , University of Massachusetts – Amherst Viscoelastic Fluid Structures Interactions
16.15 - 17.00	Marco Rosti , Okinawa Institute of Science and Technology Polymeric turbulence at large and small Reynolds numbers
17.00 - 17.45	Detlef Lohse , University of Twente Subcritical transition towards ultimate Rayleigh-Benard turbulence

THURSDAY 9 JANUARY	
09.30 - 10.15	Gareth McKinley , MIT Spatiotemporal Dynamics of Inertioelastic Instabilities in Jets of Dilute Polymer Solution: The role of rheology and jet configuration
10.15 - 10.45	Refreshments
10.45 - 11.30	Fernando Pinho , Universidade do Porto Instabilities in turbulent viscoelastic planar jets
11.30 - 12.15	Becca Thomases , Smith College A Period-Doubling Route to Chaos in Viscoelastic Kolmogorov Flow
12.15 - 13.30	Lunch
13.30 - 14.15	Rob Poole , University of Liverpool Elastic effects on the inertial instability in a T-channel geometry
14.15 - 15.00	Holger Stark , Technical University Berlin Elastic turbulence: A study with RheoTool
15.00 - 15.30	Refreshments
15.30 - 16.15	Ian Frigaard , University of British Columbia What can we expect from yield stress fluids?
16.15 - 17.00	Vincent Terrapon , University of Liège Characterization of the steady arrowhead in periodic channel flow
19.00	Workshop Dinner, hosted at Apex Grassmarket Hotel

FRIDAY 10 JANUARY	
09.30 - 10.15	Jacob Page , University of Edinburgh Linear and nonlinear routes to elasto-inertial turbulence in viscoelastic channel flow
10.15 - 11.00	Dario Vincenzi , Université Côte d'Azur Elastic-turbulence simulations: a cautionary tale
11.00 - 11.30	Refreshments
11.30 - 12.15	Innocent Mutabazi , University of Le Havre Normandy Instabilities of viscoelastic Taylor-Couette flows in different rotation regimes
12.15 - 13.00	Hongna Zhang , Tianjin University Numerical study on elaso-inertial turbulence and its connection with viscoelastic drag-reducing turbulence in channel flow
13.00	Lunch and End of Workshop

Sponsors and Funders:

Outcomes of this workshop will be published within the Journal of Non-Newtonian Fluid Mechanics.

