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The transition to turbulence of particle suspensions.

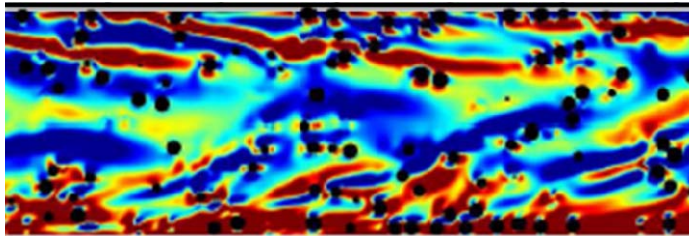
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Date: Friday, 20 July. 2018, 10:30—11:30
Venue: Faculty of Engineering Bldg. 2, 3F,
2-301 (Lecture Room 232)

Abstract:

The effect of particles on turbulence is a longstanding topic of research either by experiments or simulations. I will talk about the specific case of finite size neutrally-buoyant particles dispersion in turbulent Couette and Poiseuille flows. Based on numerical simulations, I will show how particles influence turbulent properties of the carrying flow and the intricate interplay between particle accumulation and the transition from laminar to turbulent flow. These two generic configurations of wall bounded flows help a better understanding of the complex interaction between the migration of particles and flow dynamics. The modification of the regeneration cycle of turbulence is a key point of particle fluid interaction.



References:

Modulation of the regeneration cycle by neutrally buoyant finite-size particles. G. Wang, M. Abbas and E. Climent (2018) under revision for J. Fluid Mech.

Modulation of large-scale structures by neutrally buoyant and inertial finite-size particles in turbulent Couette flow. G. Wang, M. Abbas and E. Climent (2017) Phys. Rev. Fluids. 2, 084302.

The effect of neutrally-buoyant finite-size particles on channel flows in the laminar-turbulent transition regime. V. Loisel, M. Abbas, O. Masbernat and E. Climent. Physics of Fluids, 25, 123304 (2013).

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