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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Seminar

Title : Elastic turbulence: chaotic dynamics at small Reynolds number

Speaker : Dario Vincenzi, Universite Nice Sophia Antipolis, France

Date : Friday, January 10, 2020

Time : 2:30 PM

Venue : Emmy Noether Seminar Room, ICTS Campus, Bangalore

Abstract : Elastic turbulence is a chaotic regime that develops in polymer solutions at low inertia as a result of purely elastic instabilities. Discovered by Groisman and Steinberg in 2000, it finds a natural application in microfluidics, where it is used to accelerate mixing. After reviewing the main experimental observations on elastic turbulence, I will present results on a low-dimensional model for this phenomenon, an estimate of its Lyapunov dimension, and the effect of polymer-stress diffusion in numerical simulations. I will conclude by discussing the possibility of generating a chaotic regime analogous to elastic turbulence by using rigid (instead of elastic) polymers.