SPECIAL PHYSICS LECTURE

Ramakrishna Mission Vivekananda Educational and Research Institute

(Declared by Govt. of India as Deemed to be University under Section 3 of the UGC Act, 1956)

January 24, 2020

14:30h - 15:30h

Energy cascade in internal wave attractors

Thierry Dauxois

ENS de Lyon & CNRS, France

Abstract: *Internal gravity waves play a primary role in geophysical fluids: they contribute significantly to mixing in the ocean and redistribute energy and momentum in the middle atmosphere. In addition to their very interesting and very unusual theoretical properties, these waves are linked to one of the important questions in the dynamics of the oceans: the cascade of mechanical energy in the abyss and its contribution to mixing. Combining the physics of waves, dynamical systems theory and oceanography, I will discuss a unique self-consistent experimental and numerical setup that models a cascade of triadic interactions transferring energy from large-scale monochromatic input to multi-scale internal wave motion. I will also provide explicit evidence of a wave turbulence framework for internal waves.*

Short Bio: Thierry Dauxois is a Senior Research CNRS Director working at Ecole Normale Supérieure (ENS) de Lyon, France. His research interests are nonlinear dynamics and statistical mechanics in general, with a particular emphasis on dynamical systems and chaos. Throughout his career, he has worked on solitary waves, with a special attention to their creation, stability and possible applications. He contributed also a lot to the understanding of the statistical mechanics and dynamics of systems with long-range interactions, considering not only toy models but also physical situations (gravity, stratified fluids, dipolar systems,...). More recently, he is studying waves in stratified fluids with theoretical work but also laboratory experiments. He has written over 100 publications and published two books: Physics of Solitons and Physics of Long-Range Interactions. He was the director of the French Research Society for Nonlinear and Statistical Physics (2006-2009), the President of CNRS Theoretical Physics Board (2010-2012) and Director of the Laboratoire de Physique at ENS de Lyon (2012-2020). He will become the Vice-President for Research at ENS de Lyon starting February 2020.

ORGANIZER

Shamik Gupta, RKMVERI

CONTACT

(033) 2654 9999

phy.rkmvu@gmail.com

VENUE

Prajna Bhavan Seminar Hall

Ramakrishna Mission Vivekananda Educational and Research Institute

Belur Math, Howrah 711202, West Bengal

http://physics.rkmvu.ac.in/