

ICTS Seminar

Title : Universal chiral description of Hamiltonian and Non-Hamiltonian systems

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Date : Monday, 7 September 2020

Time : 10:00 am (IST)

Abstract : Complicated structures of original dynamics can conceal interesting features of nonlinear hydrodynamics. They also hide underlying universality in systems either of Hamiltonian or non-Hamiltonian form. Therefore, a mapping (effective theory) to chiral PDEs can be of paramount importance in several ways some of which are below:

(i) Gives a sense of universality in seemingly different types of models.

(ii) Makes more transparent the fingerprints of hydrodynamics, such as nonlinearity, dissipation and dispersion.

(iii) Helps in potential physical realizations of well-known chiral PDEs (and their extensions).

(iv) Facilitates the engineering of systems and preparation of optimal initial conditions for stable propagation.

We present an effective chiral theory using perturbation techniques emphasizing the role of the Fredholm alternative, for the original dynamics for both Hamiltonian (multi-component Nonlinear Schrodinger Equation) and non-Hamiltonian (exciton-polariton condensate) systems. We give a detailed comparison (via extensive numerical simulations) between the original dynamics and the chiral reduction.

Online seminar : Please click on the below link to Join the Zoom Meeting
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