APCTP SEMINAR

Introduction to Chaotic Dynamics

Prof. M. LAKSHMANAN

Bharathidasan University

October 14th (Thu.) 14:30 (KST)
Online via ZOOM

In this talk, I plan to give a brief overview of the concept of nonlinearity, bifurcations and chaos with reference to Duffing oscillator and then consider briefly the dynamics of other nonlinear oscillators, such as damped, forced Mathews-Lakshmanan oscillator, Lienard type oscillator, Murali-Lakshmanan-Chua circuit and spin torque nano-oscillator. Then the concepts of synchronization and collective dynamical states including chimeras will be briefly touched upon.

■ **ZOOM Webinar**
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APCTP SEMINAR

Integrability and Solitons

Prof. M. LAKSHMANAN
Bharathidasan University

October 15th (Fri.) 14:30 (KST)
Online via ZOOM

In this second talk, I will briefly discuss the notion of integrability with respect to specific nonlinear oscillators, including force free Duffing oscillator, Mathews-Lakshmanan oscillator, Lienard type oscillator and other finite dimensional oscillators and introduce the notion of Lax pair. Then I will point out how the celebrated Korteweg-de Vries equation follows as an appropriate model equation to describe the Fermi-Pasta-Ulam phenomena of the anharmonic lattice and introduce its Lax pair and briefly consider the inverse scattering transform analysis to obtain soliton solutions. Other integrable soliton equations will be briefly discussed.

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