

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Physics - Topics in Nonlinear Dynamics

Subject Co-ordinator - Prof. V. Balakrishnan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Overview
- Lecture 2 - Critical points of a dynamical system
- Lecture 3 - Two-dimensional flows
- Lecture 4 - Stable and unstable manifolds
- Lecture 5 - Hamiltonian dynamics - Part I
- Lecture 6 - Hamiltonian dynamics - Part II
- Lecture 7 - Hamiltonian dynamics - Part III
- Lecture 8 - Hamiltonian dynamics - Part IV
- Lecture 9 - Hamiltonian dynamics - Part V
- Lecture 10 - Elementary bifurcations
- Lecture 11 - Limit cycles
- Lecture 12 - Poincaré index
- Lecture 13 - Illustrative examples
- Lecture 14 - Quiz 1. Questions and answers
- Lecture 15 - Bead on a rotating hoop
- Lecture 16 - Types of dynamical behaviour
- Lecture 17 - Discrete time dynamics - Part I
- Lecture 18 - Discrete time dynamics - Part II
- Lecture 19 - Discrete time dynamics - Part III
- Lecture 20 - Discrete time dynamics - Part IV
- Lecture 21 - Coarse-grained dynamics in phase space - Part I
- Lecture 22 - Coarse-grained dynamics in phase space - Part II & Stochastic dynamics - Part I
- Lecture 23 - Stochastic dynamics - Part II
- Lecture 24 - Stochastic dynamics - Part III
- Lecture 25 - Coarse-grained dynamics in phase space - Part IV & Stochastic dynamics - Part IV
- Lecture 26 - Discrete time dynamics - Part V
- Lecture 27 - Quiz 2. Questions and answers
- Lecture 28 - Stochastic dynamics - Part V
- Lecture 29 - Stochastic dynamics - Part VI

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