

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

NPTEL Video Course - Physics - N0C:Physics of Turbulence

Subject Co-ordinator - Prof. Mahendra Verma

Co-ordinating Institute - IIT - Kanpur

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

Lecture 1 - The turbulence problem
Lecture 2 - Basic hydrodynamics - Governing equations
Lecture 3 - Basic hydrodynamics - Vorticity
Lecture 4 - Basic hydrodynamics - Quadratic quantities
Lecture 5 - Basic hydrodynamics - Example problems
Lecture 6 - Fourier space representation - Definitions
Lecture 7 - Fourier space representation - Flow equations
Lecture 8 - Fourier space representation - Kinetic energy
Lecture 9 - Fourier space representation - Vorticity, Kinetic Helicity, and Enstrophy
Lecture 10 - Fourier space representation - Examples
Lecture 11 - Fourier space representation - Examples (Continued...)
Lecture 12 - Craya-Herring Basis
Lecture 13 - Craya-Herring Basis
Lecture 14 - Craya-Herring Basis
Lecture 15 - Thermal Instability
Lecture 16 - Thermal Instabilities (Continued...)
Lecture 17 - Rotating Convection
Lecture 18 - Magnetoconvection
Lecture 19 - Nonlinear Saturation
Lecture 20 - Patterns, Chaos, and Turbulence
Lecture 21 - Energy Transfers
Lecture 22 - Energy Transfers
Lecture 23 - Energy Transfers
Lecture 24 - Energy Transfers
Lecture 25 - Energy Transfers
Lecture 26 - Energy Transfers
Lecture 27 - Kolmogorov's Theory
Lecture 28 - Kolmogorov's Theory
Lecture 29 - Kolmogorov's Theory

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- Lecture 30 - Kolmogorov's four-fifth law
- Lecture 31 - Kolmogorov's four-fifth law
- Lecture 32 - Kolmogorov's four-fifth law
- Lecture 33 - Enstrophy Spectrum and Flux
- Lecture 34 - Two-dimensional Turbulence
- Lecture 35 - Helical turbulence
- Lecture 36 - Flow with a scalar
- Lecture 37 - Passive scalar turbulence
- Lecture 38 - Stably stratified turbulence
- Lecture 39 - Turbulent thermal convection
- Lecture 40 - Flow with a vector
- Lecture 41 - MHD Turbulence
- Lecture 42 - MHD Turbulence
- Lecture 43 - MHD Turbulence
- Lecture 44 - MHD Turbulence