NPTEL Video Course - Chemical Engineering - NOC:Introduction to Interfacial Waves

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Co-ordinating Institute - IIT - Bombay

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

Lecture 30 - Linearized wave equations in deep water: dispersion relation
Lecture 31 - Linearised deep-water surface gravity waves (Continued...)
Lecture 32 - Standing and travelling waves in deep water
Lecture 33 - Cauchy-Poisson initial value problem for surface-gravity waves in deep water
Lecture 34 - Cauchy-Poisson problem (Continued...)
Lecture 35 - Cauchy-Poisson problem in cylindrical geometry
Lecture 36 - Cauchy-Poisson problem in cylindrical geometry (Continued...)
Lecture 37 - Group-velocity and the Cauchy-Poisson problem
Lecture 38 - Cauchy-Poisson problem for delta function initial condition
Lecture 39 - Cauchy-Poisson problem for delta function initial condition (Continued...)
Lecture 40 - Capillary-gravity waves
Lecture 41 - Waves on a pool of finite depth
Lecture 42 - Axisymmetric Cauchy-Poisson problem visualisation: the pebble in the deep pond problem
Lecture 43 - Rayleigh-Plateau capillary instability
Lecture 44 - Rayleigh-Plateau capillary instability (Continued...)
Lecture 45 - Rayleigh-Plateau capillary instability on thin film coating a rod
Lecture 46 - Rayleigh-Plateau capillary instability of a cylindrical air column in a liquid
Lecture 47 - Mechanism of the Rayleigh-Plateau instability
Lecture 48 - Shape oscillations of a spherical interface
Lecture 49 - Shape oscillations of a spherical interface (Continued...)
Lecture 50 - Shape oscillations of a spherical interface (Continued...)
Lecture 51 - Analysis of l=0 and l=1 modes for a spherical drop
Lecture 52 - Faraday waves on an interface - stability of time dependent base states
Lecture 53 - Mathieu equation for Faraday waves
Lecture 54 - Applications of Faraday waves - atomisation and spray formation
Lecture 55 - Waves and instability on density stratified shear flows - the KH model
Lecture 56 - Limits of KH dispersion relation: Rayleigh-Taylor instability
Lecture 57 - KH dispersion relation : model of wind wave generation
Lecture 58 - Helmholtz instability of a vortex sheet and summary
Lecture 59 - Derivation of the Stokes travelling wave
Lecture 60 - Derivation of the Stokes travelling wave (Continued...)
Lecture 61 - Derivation of the Stokes travelling wave (Continued...)