

Scuola di Dottorato in Ingegneria “Leonardo da Vinci”

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Irreversible Thermodynamics and its Applications to Multiphase Flows

Docente: **Roberto Mauri**

E-mail: r.mauri@ing.unipi.it

Durata del corso: 20 ore

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 - 1.1 Local equilibrium
 - 1.2 Equilibrium distribution
 - 1.3 Application to thermodynamics

- 2 Microscopic reversibility
 - 2.1 Probability distributions
 - 2.2 Microscopic reversibility
 - 2.3 The Onsager relations
 - 2.4 The correlation function
 - 2.5 The Principle of casualty
 - 2.6 The fluctuation-dissipation theorem

- 3 The Langevin equation
 - 3.1 Brownian motion
 - 3.2 The 1D Langevin equation
 - 3.3 Generalized Langevin equation
 - 3.4 A simple example

- 4 The Fokker-Plank equation
 - 4.1 Markov process
 - 4.2 Derivation of the Fokker-Plank equation
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 - 4.4 Free diffusion of a Brownian particle

- 5 Multiphase Flow
 - 5.1 Governing equations; the diffusive fluxes
 - 5.2 The energy equation
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 - 5.4 Constitutive equations of the diffusive fluxes