



Multiscale Modeling and Simulation

The class will introduce some of the fundamental concepts of multiscale modeling and computation. The emphasis is on the coupling of physical descriptions across different scales and on multiresolution computational methods. Multiscale concepts are introduced using examples from engineering.

LECTURE CONTENTS	DATE
From Atomistic to Continuum descriptions Example : The 1D Plasma Model	We. 9/7
From Atomistic to Continuum descriptions Example : The 1D Plasma Model	We. 9/14
Stochastic Modeling : The Master Equation and the Fokker Planck Equation - Part I	We. 9/21
Stochastic Modeling : The Master Equation and the Fokker Planck Equation - Part II	We. 9/28
Multiresolution Modeling : Multipole Expansion Techniques- Part I	We. 11/2
Multiresolution Modeling : Multipole Expansion Techniques - Part II (NOTE : in Rm. 85)	Th. 11/10
Multiresolution Modeling : Multigrid Techniques - Part I	We. 11/16
Multiresolution Modeling : Multigrid Techniques - Part II	We. 11/30
Coupling Molecular Dynamics and Continuum Descriptions	We. 12/7
Presentations of current research by the Class Participants	We. 12/14

Lecturer : Prof. Petros Koumoutsakos (ETH Zurich)

Location: Rm. 84 - Engineering Building 8 - **Credit :** This is a NO-credit course

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