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Phase-Field Models for Multiphase Complex Fluids: Modeling, Numerical Analysis and Simulations

Jie Shen

Purdue University

Abstract

I shall present some recent work on phase-field model for multiphase incompressible flows. We shall pay particular attention to situations with large density ratios as they lead to formidable challenges in both analysis and simulation. I shall present efficient and accurate numerical schemes for solving this coupled nonlinear system, in many case prove that they are energy stable, and show ample numerical results which not only demonstrate the effectiveness of the numerical schemes, but also validate the flexibility and robustness of the phase-field model.

Date: Wednesday, June 29, 2011

Time: 10:30

Place: IMBM Seminar Room, Boğaziçi University