For Favour of posting

The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

An introduction to Immersed Boundary Method and its applications to interfacial flows with surfactant

by

Prof. Ming-Chih LAI

National Chiao Tung University,
Taiwan

Abstract

In this lecture, we shall first introduce the mathematical formulation and numerical method for the immersed boundary (IB) method. The IB method proposed by Peskin has been successfully applied to blood–valve interaction and other biological problems The formulation employs a mixture of Eulerian and Lagrangian variables, where the immersed boundary is represented by a set of discrete Lagrangian markers embedding in the Eulerian fluid domain.Those markers can be treated as force generators to the fluid while being carried by the fluid motion. The interaction between the Lagrangian force generators (markers) and the fluid motion described by variables defined on the fixed Eulerian grid, is linked by a properly chosen discretized delta function. The IB method is very easy to implement for various applications. As an application, we use IB method to study the interfacial flows with insoluble and soluble surfactant.

Date: ***Thursday, 24 Aug 2017***

Time: ***4:30p.m. – 6:00p.m.***

Venue: ***Room 1505, Academic Building (near Lifts 25 & 26), HKUST***

All are welcome!