香港中文大學
The Chinese University of Hong Kong

DEPARTMENT OF MATHEMATICS
THE CHINESE UNIVERSITY OF HONG KONG

ICCM Sze Lim Lectures

Mathematics and Science:

Recent Progress in the Clay Millennium Problem on the Navier-Stokes Equations and Related Models

Speaker:

Prof. Thomas Hou (California Institute of Technology)

Fellow of the American Academy of Arts and Sciences
Fellow of the Society for Industrial and Applied Mathematics
Fellow of the American Mathematical Society
Plenary Speaker of the International Congress on Industrial and Applied Mathematicians
Invited Speaker of the International Congress of Mathematicians
Recipient of:
Computational and Applied Sciences Award of the United States Association of Computational Mechanics
ICCM Morningside Gold Medal in Applied Mathematics
SIAM James H. Wilkinson Prize in Numerical Analysis and Scientific Computing

Date : 28 March 2018 (Wednesday)

Time : 5:00pm – 6:00pm

Venue : LT1, Lady Shaw Building (LSB), CUHK

Language : English

Abstract:

Fluid flows are ubiquitous in scientific and engineering applications as well as in our daily life. It is well known that the motion of fluid flows is governed by the Navier-Stokes equations. Despite its wide spread applications, the global existence and regularity of the three dimensional incompressible Navier-Stokes equations remains to be one of the most challenging open questions in fluid dynamics and mathematics. This challenging question is one of the Seven Millennium Prize Problems posted by the Clay Mathematics Institute. In this lecture, I will review some classical results as well as the recent developments for the Navier-Stokes equations and explain why this problem is so challenging. Finally, I will report some recent progress in searching for potential finite time singularities of the Navier-Stokes equations and related models using an integrated analysis and computation approach.

All are welcome

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