Joint Colloquium Lecture of Institute for Mathematical Sciences and Department of Mathematics

Boltzmann Equation, Quantitative Theory

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Date	Wednesday, 10 Sep 2008
Venue	Colloquium Room A S14, #03-10 Department of Mathematics Faculty of Science National University of Singapore
Time	2:00 – 3:00pm
About the Speaker	Prof Tai-Ping Liu received his B.S. degree in Mathematics from Taiwan University in 1968, M. S. degree from Oregon State University in 1970, and Ph. D. degree from University of Michigan in 1973. He has been a faculty member of University of Maryland, 1973-1988, New York University, 1988-1990, and Stanford University since 1990. In 2000 he joins the Institute of Mathematics, Academia Sinica as Distinguished Research Fellow. In 1992 he was elected Academician of Academia Sinica. His research interests center around Nonlinear partial differential equations, shock wave theory, and kinetic theory.
Abstract	There are basically two approaches for the mathematical study of Boltzmann equation. The French School has excelled in the study of weak solutions and their various hydrodynamics limits in the sense of Leray. The other approach that goes back to mathematicians Hilbert, Carleman and Grad, and physicists Knudsen and Sone aim at more quantitative understanding of physical phenomena. The latter, quantitative approach is being revived in recent years. This new effort is centered on the explicit construction of the Green's function. The Green's function approach has begun to yield new understanding of some of the key physical phenomena. In this talk we will explain the approach through the application to the important Boltzmann boundary layers.