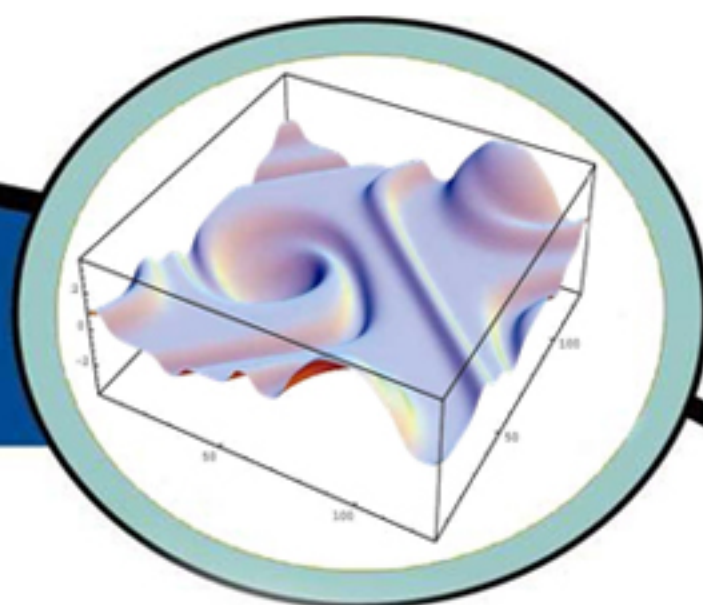


IMS Public Lecture



The Mathematics of Scientific Computation

Speaker: Professor Eitan Tadmor
University of Maryland, College Park
Date: Wednesday, 12 January 2005
Time: 6:30 p.m. – 7:30 p.m.
Venue: LT 31(Faculty of Science Auditorium)
Blk S16, Level 3, 3 Science Drive 2
National University of Singapore
Singapore 117543

FREE
ADMISSION

Abstract

Before emails and media players, the sole purpose of computers was to perform scientific computations. That purpose remains the central task of today's high performance computers. Indeed, scientific computation has emerged as one of the fundamental tools of scientific investigation, and it has revolutionized the scientific methodology through its interplay with experiments and theory.

Numerical algorithms are at the heart of this revolution. They simulate quantitative assembly of different small scale dynamics and convert it into accurate predictions of large scale phenomena. It is here that mathematics, modeling and experiments interact through scientific computation. In this talk, the speaker will provide a bird's eye view on the mathematics behind numerical algorithms. He will review applications ranging from computational fluid dynamics and image processing to weather prediction and computational tomography.

About the Speaker

Eitan Tadmor is a Distinguished University Professor at the University of Maryland, College Park and the Director of the University Center for Scientific Computation and Mathematical Modeling (CSCAMM).

Tadmor's primary research interests include the development of novel, high-resolution algorithms for the approximate solution of time-dependent problems and the interplay between analytical theory and computational aspects of such approximate methods, with applications to shock waves, kinetic transport, and incompressible flows.

Tadmor received his Ph.D. in Mathematics from Tel Aviv University (TAU) in 1979 and began his scientific career in CalTech, 1980-1982. He held professorship positions at TAU, 1983-1998, and at UCLA, 1995-2004, where he was the founding co-director of the NSF Institute for Pure and Applied Mathematics (IPAM) in 1999-2001. Since 2002, he serves on the faculty of the Department of Mathematics and the Institute for Physical Sciences and Technology in the University of Maryland. Tadmor serves on the editorial boards of more than a dozen international journals and has given numerous invited lectures, including plenary addresses in the international conferences on hyperbolic problems in 1990 and 1998 and an invited lecture in the 2002 International Congress of Mathematicians. He published more than one hundred research papers, mostly in Numerical Analysis and applied Partial Differential Equations.

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