Departments of Physics and Math Colloquium
Entropy Satisfying Numerical Methods for Fokker-Planck-type Equations

Prof. Hailiang Liu
Iowa State University
Friday, February 27, 2015
1:30 – 2:30 PM
Venue: AHC3-214
Refreshments will be served at 1:15 PM

Abstract: Kinetic Fokker-Planck equations arise in many applications, and thus there has been considerable interest in the development of accurate numerical methods to solve them. The peculiar feature of these models is that the transient solution converges to certain equilibrium when time becomes large. For the numerical method to capture the long-time pattern of the underlying solution, some structure preserving methods have been designed to preserve physical properties exactly at the discrete level. I shall explain the main ideas and challenges through several model equations in different applications. Numerical results are reported to illustrate the capacity of the proposed algorithms.

Biography: Professor Hailiang Liu received his Ph.D. in Applied Mathematics from Chinese Academy of Science. He joined UCLA as an assistant professor in 1999 after finishing Alexander von Humboldt fellowship in Germany. He joined Iowa State University as the Holl Chair of Applied Mathematics in 2002, and is a full professor since 2007. His research interests lie in the area of computational and applied mathematics, in both analysis and numerical approximation of time-dependent partial differential equations, including hyperbolic balance laws, kinetic transports, and Schrödinger equations with applications in fluids, plasma and polymers.

The event is free and open to the public.

Future seminars can be found at http://physics.fiu.edu/seminars/