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HAROLD J GAY LECTURE SERIES

PDEs and Fractals

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Scaling Limits of Large Systems

Monday, 4:00 pm
March 16, 2009
Bartlett Center



ABSTRACT We will discuss the longtime behavior of large systems of interacting particles that evolve in time. The number of particles is conserved. When we rescale space, the local density as a function of space will evolve slowly to its equilibrium value, which is a constant indicating uniform density. With suitable rescaling of time, it will evolve, in the limit, according to some nonlinear PDE. We will examine several examples of this behavior.

Geometry with its applications has been at the heart of the development of partial differential equations and boundary value problems since the very beginning. In physics, biology, economics, and other applied fields, a variety of new problems are now emerging that display unusual geometrical, analytical and scaling features, possibly of fractal type. The objective of these lectures is to acquire the view of outstanding mathematicians on the subject of differential equations and fractals, and their developments and applications, in a broad perspective encompassing both classical highlights and contemporary trends.



Sponsored by WPI and hosted by the Department of
Mathematical Sciences. Coffee and tea will be available one
half hour before lecture time in Stratton Hall 107.
Participation of faculty and students is most welcome.

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