

PHYSICAL MATHEMATICS SEMINAR

DIFFUSION-LIMITED AGGREGATION AND LAPLACIAN GROWTH

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ABSTRACT:

Laplacian growth problems form an important class of non-equilibrium growth processes in systems of very different background, such as surface science, fluid dynamics and biology. Their best known discrete model, diffusion-limited aggregation (DLA), has gathered an extensive – mostly numerical -- literature in the last two decades, but despite its simplicity it still eludes analytical treatment.

In this talk I review some of the latest developments in this area:

- (1) compare methods based on iterated conformal maps with ones using random walker particles;
- (2) present numerical evidence against many exotic claims, such as presence of multiple length scales in DLA, multiscaling, and boundary condition dependent fractal dimension;
- (3) relate Laplacian growth and diffusion-limited aggregation through ensemble averaging and a recently introduced theoretical approach.

TUESDAY, MARCH 15, 2005

2:30 PM

Building 2, Room 338

Refreshments at 3:30 PM in Building 2, Room 349.



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