



THE UNIVERSITY OF CHICAGO

Departments of Computer Science, Mathematics, Statistics, and the Computation Institute
SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

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Scale Dependence and Renormalization in Model Reduction

THURSDAY, March 14, 2013, at 4:30 PM

Eckhart 133, 5734 S. University Avenue

ABSTRACT

The problem of model reduction for complex systems is an active area of research. In this talk I want to discuss how the physics inspired concepts of scale dependence and renormalization can be used to facilitate the construction of accurate reduced models for complex problems. In particular, I will be presenting the application of these concepts to the problem of detecting and tracking singularities of time-dependent partial differential equations. Results for the inviscid Burgers, the critical nonlinear Schrödinger and the incompressible Euler equations will be used to illustrate the constructions.

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