Mathematics, Statistics, and Computer Science **@ UIC**

Departmental Colloquium

Determining forms and data assimilation

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Abstract: A determining form for a dissipative partial differential equation is an ordinary differential equation in a certain trajectory space where the solutions on the global attractor of the PDE are readily recognized. It is an ODE in the true sense of defining a vector field which is (globally) Lipschitz. We discuss two types of determining forms: one where solutions on the global attractor of the PDE are traveling waves, and another where they are steady states. Each determining form is related to a certain approach to data assimilation, i.e. the injection of a coarse-grain time series into the model in order to recover the matching full solution. Applications have been made to the 2D incompressible Navier-Stokes, damped-driven nonlinear Schrodinger, damped-driven Korteveg-de Vries and surface quasigeostrophic equations.

Friday, February 24 at 3:00 PM in SEO 636