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

Analysis and Applied Mathematics Seminar

Interfacial dynamics of dissolving objects in fluid flow

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Abstract: An advection–diffusion-limited dissolution model of an object being eroded by a two-dimensional potential flow will be presented. By taking advantage of conformal invariance of the model, a numerical method will be introduced that tracks the evolution of the object boundary in terms of a time-dependent Laurent series. Simulations of several dissolving objects will be shown, all of which show collapse to a single point in finite time. The simulations reveal a surprising connection between the position of the collapse point and the initial Laurent coefficients, which was subsequently derived analytically.

Monday, December 3 at 4:00 PM in 636 SEO