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

Departmental Colloquium

A model of controlled growth

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Abstract: We consider a free boundary problem for a system of PDEs, modeling the growth of a biological tissue. A morphogen, controlling volume growth, is produced by specific cells and then diffused and absorbed throughout the domain. The geometric shape of the growing tissue is determined by the instantaneous minimization of an elastic deformation energy, subject to a constraint on the volumetric growth. For an initial domain with $C^{2,\alpha}$ boundary, our main result establishes the local existence and uniqueness of a classical solution, up to a rigid motion. This is a joint work with Alberto Bressan.

Friday, April 7 at 3:00 PM in SEO 636