Applied Mathematics

McGill & CRM Applied Mathematics Seminar

2:35 pm Monday 26 January 2004
At McGill, Burnside Hall 1205

"Dynamics of Sharp Exothermic Interfaces"

Victor Roytburd
Department of Mathematical Sciences
Rensselaer Polytechnic Institute, New York

Coffee and refreshments will be served after the seminar

Abstract: We consider nonequilibrium sharp-interface models that are characterized by energy deposition at the interface. In some sense they can be regarded as a limiting case of reaction-diffusion models. These models are related to condensed-state combustion, explosive crystallization and some other phase transition type phenomena. We demonstrate that in many respects, although described by partial differential equations, asymptotic dynamics are essentially finite-dimensional. We also examine phase-locking effects that take place for propagation in periodic media. This is a joint work with M. Frankel of IUPUI.