



Mathematical Biology Seminar



Monday, September 14, 2009
3 pm – 657 CAB

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On coarse-grained description of complex dynamical systems

Modelling of many practically important systems from basic principles requires a detailed accounting for background interactions in the system. The resulting mathematical models are high-dimensional dynamical systems. Examples are molecular dynamic simulations of biomolecules, complex fluid flows, or individual-based models in ecology. At the same time, coarse-grained, macroscopic description with a reduced dimensionality is often sufficient for understanding of the model behaviour and for practical applications such as control or management. We shall consider several general approaches for obtaining such simplified description. The presentation has been partially inspired by review paper D.Givon, R.Kupferman, and A.Stuart, 2004, "Extracting macroscopic dynamics: model problems and algorithms", *Nonlinearity* 17 R55-R127.

Join us for refreshments in CAB 549 immediately following the Seminar

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