1046-65-1956   **Ching-Shan Chou*** (`cschou@math.uci.edu`), Department of Mathematics, 340 Rowland Hall, University of California, Irvine, Irvine, CA 92697. *Computation of Spatial Dynamics in Systems Biology.*

Mathematical biology has been an emerging subject in recent years. Numerous models were proposed and computer simulation was extensively used to investigate the models. In particular, spatial dynamics is one of subjects that are of great interest. For example, morphogenesis in early embryo development, which is concerned with positions of the various specialized cell type, can be modeled by a systems of reaction-diffusion equations. Therefore, PDE systems play a critical role in modeling spatial dynamics of biological systems, and due to the difficulties in mathematical analysis of many systems, numerical simulations are the most important tools for model exploration.

In this talk, a few spatial models of PDEs in systems biology will be introduced. Each system presents different computational challenges, depending on the type of PDEs they belong to. The purpose of this talk is to bridge the design of numerical algorithm with the needs in specific applications, and discuss the possible future directions of numerical schemes in math biology. (Received September 16, 2008)