

1035-92-886

Qing Nie* (qnie@math.uci.edu), Department of Mathematics, University of California, Irvine, Irvine, CA 92697-3875. *Formation of Morphogen Gradients in Dorsal Ventral Patterning.*

Many patterns of cell and tissue organization are specified during development by gradients of morphogens, substances that assign different cell fates at different concentrations. Using experimental and computational approaches, we investigate how multiprotein networks create the morphogen gradients during dorsal-ventral patterning in *Drosophila* and Zebrafish embryos. In this talk, I shall also discuss mathematical and computational challenges associated with such study, and introduce a new class of temporal algorithms for stiff reaction-diffusion systems. (Received September 17, 2007)