

Meeting: 1004, Bowling Green, Kentucky, SS 13A, Special Session on Nonlinear Analysis and Applied Mathematics

1004-35-135 **Hyung Ju Hwang*** (hjhwang@math.duke.edu), Department of Mathematics, Duke University,
Box 90320, Durham, NC 27708. *Hyperbolic models for chemotaxis.*

We consider hyperbolic and kinetic systems for chemosensitive movement, especially for chemotactic behavior. In this talk, we focus on a one dimensional hyperbolic model. The model consists of hyperbolic differential equations for the chemotactic species and is coupled with either a parabolic or an elliptic equation for the dynamics of the external chemical signal. The speed of the chemotactic species is allowed to depend on the external signal and the turning rates may depend on the signal and its gradients in space and time, as observed in experiments. Global classical solutions are established for regular initial data and a parabolic limit is proved. (Received January 21, 2005)