1064-92-84   **Ruijun Zhao*** (`rzhao@purdue.edu`), 305 North University Street, Purdue University, Department of Computer Science, West Lafayette, IN 47907, and **Fabio A. Milner**. *An Epidemic S-I-R Model with Directed Spatial Diffusion.*

We study an epidemic S-I-R model with spatial structure in which the susceptible move away from infection and total population avoid overcrowding. In particular, the model is analyzed in two extreme cases–moving in avoidance of infection only and overcrowding only. We show existence of a finite time blow-up solution for the case of avoiding infection only. Challenge of solving this type of problems is discussed. Some numerical results using a scheme based on Runge-Kutta Discontinuous Galerkin method are presented. (Received August 30, 2010)