1109-92-75 **Azmy S. Ackleh** and **Keng Deng*** (deng@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, and **Yixiang Wu**. *Competitive Exclusion and Coexistence in a Two-Strain Pathogen Model with Diffusion.*

We consider a two-strain pathogen model described by a system of reaction-diffusion equations. We define a basic reproduction number R_0 and show that when the model parameters are constant (spatially homogenous), if $R_0 > 1$ then one strain will outcompete the other strain and drive it to extinction, but if $R_0 \leq 1$ then the disease-free equilibrium is globally attractive. When we assume that the transmission and recovery rates are heterogenous, then there are two possible outcomes under the condition $R_0 > 1$: 1) Competitive exclusion where one strain dies out. 2) Coexistence between the two strains. Thus, spatial heterogeneity promotes coexistence. (Received January 21, 2015)