1131-65-203   **Azmy S. Ackleh***, Department of Mathematics, University of Louisiana at Lafayette, Lafayette, Louisiana 70506, and **Baoling Ma** and **Tingting Tang**. *A High-Resolution Finite Difference Method for a Nonlinear Model of Structured Susceptible-Infected Population Coupled with the Environment.*

In this talk I will present a general model describing a structured Susceptible-Infected (SI) population coupled with the environment. This model applies to problems arising in ecology, epidemiology and cell biology. The model consists of a system of quasilinear hyperbolic partial differential equations coupled with a system of non-linear ordinary differential equations that represents the environment. I will discuss a second order high-resolution finite difference scheme to numerically solve the model. Convergence of this scheme to a weak solution with bounded total variation is established. Numerical simulations are provided to demonstrate the high-resolution property of the scheme. Finally, an application to a multi-host wildlife disease model is explored. (Received July 14, 2017)