1105-35-164 **Azmy S. Ackleh**, **Baoling Ma** and **Tingting Tang*** (txt2339@louisiana.edu).

Well-posedness and finite difference approximations for a general coupled system of SI structured population model.

In this talk, we present a new and general class of SI (SIR, SEIR) structured population models with a wide range of applications. The model consists of a system of quasilinear hyperbolic partial differential equations coupled with a system of nonlinear ordinary differential equations. We develop a second order high resolution finite difference scheme to approximate the solution of the model. Convergence of the numerical approximations to a weak solution with total bounded variation has been proved. Applications of the model are presented to demonstrate the generality. (Received September 17, 2014)