Meeting: 1003, Atlanta, Georgia, SS 18A, AMS-SIAM Special Session on Recent Advances in Mathematical Ecology, I

1003-92-1640 **Robert van Woesik** (rvw@fit.edu), Department of Biological Sciences, Melbourne, FL 32901, and **Semen Koksal*** (skoksal@fit.edu), Department of Mathematical Sciences, Melbourne, FL 32901. *Thermal stress, coral-bleaching susceptibility, and modeling population response.*

In this talk, we will present a novel mathematical model, in terms of a nonlinear system of ODE's, that links the physiological and population response of corals to water temperature, irradiance, and water flow rates. This system accurately predicts thermal stress and subsequent population change. Furthermore, it allows hindcasting and forecasting of changes in coral populations based on current and predicted environmental scenarios involving global climate change. (Received October 05, 2004)