1086-92-1604 **Marco V Martinez*** (mmarti52@utk.edu) and **Suzanne Lenhart**. *Optimal control of integrodifference equations in a host-pathogen system.* Preliminary report.

The gypsy moth is an invasive species and a destructive forest defoliator in North America. This work focuses on optimal control techniques for models of areas where the population is in the invasion front. Integrodifference equations incorporate space into a system of discrete time equations. We design an objective functional to minimize the cost generated by the defoliation caused by the gypsy moth and the cost of controlling the population. Existence and uniqueness results for the optimal control and corresponding states have been completed. We use a forward backward sweep numerical method, and our numerical results suggest spatial and temporal location and intensity of optimal controls. (Received September 23, 2012)