1003-49-546 **Wandi Ding*** (`ding@math.utk.edu`), 121 Ayres Hall, 1403 Circle Dr., Knoxville, TN 37996, and **Suzanne Lenhart** (`lenhart@math.utk.edu`). *Optimal Control on Hybrid Systems Involving ODEs.*

We are considering an optimal control problem for a type of semi-discrete hybrid system involving ordinary differential equations and some discrete time feature. One state variable has dynamics in only one season of the year and has a jump condition to obtain the initial condition for that corresponding season in the next year. The other state variable has continuous dynamics. Given a general objective funtional, existence and necessary conditions for an optimal control are established. We want to apply our approach to a tick-transmitted model with changes in a seasonal way. (Received September 21, 2004)