1138-92-382   **Suzanne Lenhart*** (`slenhart@utk.edu`), University of Tennessee, Knoxville, TN 37996-3410.
Optimal control of vaccination in a vector-borne reaction-diffusion model applied to Zika virus. Preliminary report.

We formulate a reaction diffusion model that considers spatial movement of humans and mosquito vectors, with local contact transmission of Zika virus. Vaccination is introduced as a control variable, giving immunity to susceptible humans, in order to characterize an optimal vaccination strategy that minimizes the costs associated with infections and vaccines. Parameter estimation and numerical simulations are carried out using data for the initial 2015 Zika outbreak in the state of Rio Grande do Norte in Brazil. (Received February 13, 2018)