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

Optimal control theory of parabolic partial differential equations is used to choose vaccine distribution. A PDE system represents Zika virus disease spreading across a state in Brazil; the control depending on space and time is a vaccination rate. Data from reported cases in a state in Brazil in 2015 were used to estimate parameters. Simulation results will be shown. (Received September 03, 2018)