

1036-92-9

John Wesley Cain* (jwcain@vcu.edu), Department of Mathematics, Box 842014, 1001 West Main Street, Richmond, VA 23284-2014. *A Kinematic Model of Wave Propagation in an Excitable Medium.*

Reaction-diffusion equations are commonly used to model propagation of action potentials in cardiac tissue. Since arrhythmias, by definition, concern the timing of excitation and recovery of cells, one often wishes to track the progress of action potentials without regard to the actual wave profile. In this talk, we will derive a kinematic model of wave propagation from a standard reaction-diffusion model. The kinematic model is presented as a sequence of ordinary differential equations whose linearization can be solved exactly. (Received October 19, 2007)