1107-35-193   **Stephen Pankavich*** (`pankavic@mines.edu`), Dept. of Applied Mathematics and Statistics, Colorado School of Mines, 1500 Illinois St., Golden, CO 80401. *The Spatially Heterogeneous Dynamics of HIV in-vivo.* Preliminary report.

The Human Immunodeficiency Virus type-1 (HIV) is one of the most intensely studied viral pathogens in human history. Despite this vast effort, many aspects of HIV infection dynamics and disease pathogenesis within a host are still not understood. Here, we propose a new model of viral propagation in-vivo that generalizes the standard lumped population model by allowing susceptible and infected T-cells, as well as HIV virions, to move diffusively throughout a host region. In particular, we will elucidate the contributions of spatial fluctuations, correlations, and preferential infection to viral propagation in vivo using mathematical results concerning the long-time dynamics of the system. A few well-posedness results for this model, comprised of a nonlinear system of three parabolic PDEs, will also be briefly discussed. (Received January 14, 2015)