

1065-92-165

**Sivan Leviyang\*** (sr286@georgetown.edu), Georgetown University, Dept. Mathematics,  
Washington, DC 20057. *The Effect of Immune System Attack on Intra-host HIV Genealogies.*

In order to analyze a collection of intra-host, HIV genetic samples, one must construct a genealogy that reflects the ancestral relationships of the genetic samples. The genealogy or set of genealogies constructed reflect modeling assumptions one makes on the forces shaping the evolution of HIV. Most tools currently used to construct such genealogies in the context of HIV use generic models that do not include the selective force produced by immune system attack. We will describe a model that includes the effects of immune system attack on HIV. We then use this model to analyze HIV genetic diversity during an infection. Mathematically, this work draws on ideas from coalescent theory and, more generally, stochastic processes. (Received September 12, 2010)