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**Stanca M Ciupe\*** ([stanca@vt.edu](mailto:stanca@vt.edu)), 416 McBryde Hall, Blacksburg, VA 24060. *Inoculum size, immune responses, and the nonlinear host-virus interactions.*

Experimental studies have shown that immune protection and disease severity do not correlate linearly with the size and infectious-stage of viral inoculum. We use mathematical models in connection with data to better represent the relationship between the inoculum dose and disease outcome. In this talk, I will present two case studies: simian immunodeficiency virus infection in rhesus macaques and hepatitis B virus infection in non-human primates to provide hypotheses on when different inoculum doses trigger immune responses that provide protection, induce immune tolerance and chronic disease, and/or lead to pathogenesis. Such results can guide our understanding of the virus-host dynamics that control virus infections or permit a transition to chronic disease. (Received August 21, 2020)