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Vrushali A. Bokil and **Margaret-Rose W. Leung*** (leungm@onid.orst.edu). *An Analysis of the Coexistence of Three Competing Species with a Shared Pathogen.*

We consider an SI model of three competing species that are all affected by a single pathogen which is transmitted directly via mass action. The total population sizes of the three species satisfy a three-dimensional Lotka-Volterra competition model. We address the interaction between competition and disease dynamics, and show that infected coexistence in the model is determined by the values of the basic reproduction numbers as well as the relative strengths of intra-specific crowding versus inter-specific competition for all three species. (Received September 20, 2011)