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*Threshold Dynamics in Disease Models with Latency and Relapse*

In this talk, I will present a general mathematical model for a disease with an exposed (latent) period and relapse. Such a model is appropriate for tuberculosis, including bovine tuberculosis in cattle and wildlife, and for herpes. For this model with a general probability of remaining in the exposed class, the basic reproduction number is identified and its threshold property is discussed. Two special cases, which result in an ODE system and a DDE system, respectively, are discussed in details.