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Infectious Disease Modeling by a Hybrid System Approach

Mathematical models for infectious disease are crucial in gaining knowledge of the underlying mechanism that drives an epidemic. They are often used for implementing and evaluating control schemes in order to eradicate a disease. This talk discusses a hybrid dynamical system approach for infectious disease modeling. Seasonality and pulse control are considered in the epidemic models. Hybrid control schemes are examined, and, in doing so, we hope to gain insight into the effects of a time-varying contact rate on critical control levels required for eradication.