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Effect of waning immunity on asymptotic behavior of epidemic models

Asymptotic behavior of the positive solutions of epidemic models have been widely studied. Waning immunity of recovered individuals has now been highlighted as an important concept of the modelling for the disease prevalence in the population. In this talk, recent works on the asymptotic stability of equilibria of the model governed by a class of nonlinear delay differential equations, are presented. Incorporating two constant delays that represent latency time and infectious period, a several open problems will also be referred concerning the effect of the loss of immunity on the stability of an endemic equilibrium of the model, via the linearization at the equilibrium when the basic reproduction number is greater than 1.