

SIS and SIR Epidemic Models on Time Scales

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In this talk, we formulate SIR (susceptible-infected-recovered) and SIS (susceptible-infected-susceptible) epidemic models with time-dependent coefficients on time scales to unify and extend continuous and discrete models. We derive exact solutions to these models by the approach of the Bernoulli dynamic equation and discuss the asymptotic behavior of susceptibles and infectives. Examples on different time scales are presented to illustrate the results.

Keywords. dynamic equations, time scales, epidemic models, asymptotic behavior

This is a joint work with Elvan Akin.