

GLOBAL ANALYSIS OF SIR EPIDEMIC MODEL WITH IMMIGRATION AND NON-MONOTONE INCIDENCE RATE

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ABSTRACT

In this paper we study an epidemic model with immigration and non-monotonic incidence rate, which describes the psychological effect of certain serious diseases on the community when the number of infective is getting larger. By carrying out a global analysis of the model and studying the stability of the disease-free equilibrium and the endemic equilibrium, we show that either the number of infective individuals tends to zero as time evolves or the disease persists.

KEYWORDS: Epidemic, Global Stability, Immigration, Non-Monotone Incidence Rate