

# Traveling waves in a spatial SIRS model

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## **Abstract:**

Throughout history epidemic diseases, such as European Plague, smallpox, avian flu, SARS, etc., have had devastating effects on humans and animal populations. In order to understand the spatial spread of infectious diseases, mathematical models consisting of reaction-diffusion equations and integro-differential equations have been developed, and traveling wave solutions of these models have been studied to investigate whether an infectious disease could persist as a wave front of infectives that travels geographically across vast distances. Relevant problems include to determine the existence of traveling waves, find the minimum speed, and determine the stability of traveling waves. These problems are often very challenging, and have attracted a great deal of research in applied dynamical systems. In this talk, a recent work on the existence of traveling waves for a spatial SIRS model will be presented.