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The Spreading of Invasive Species and Related Topics

Friday, October 8, 2010
3:00pm, Salisbury Labs 104

ABSTRACT In 1937 R. A. Fisher created a model for the spread of a fitter mutant into an established population of the same species. The model was a semilinear parabolic equation for the fraction of the fitter population. Fisher conjectured that such an invasion spreads with a finite asymptotic speed, and that this speed is also the slowest speed of a nontrivial traveling wave. This conjecture was proved by Kolmogorov, Petrovsky, and Piscounov in the same year. Since then, such properties have been shown to be true of an extensive set of models in the physical and biological sciences. The models can take the form of partial differential equations, finite difference equations, discrete-time integro-difference equations, or of more general discrete-time recursions in one or more space dimensions. They can also involve interactions between two or more species. • This lecture will give an outline of old and new results in the study of spreading speeds and traveling waves for such models.

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Participation of faculty and students is most welcome
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