

Colloquium

Competition-diffusion systems of three species, the long time asymptotics of integrable water waves

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摘 要：

In this talk, two topics of partial differential equations (PDEs) will be discussed. The first one is the phenomenon of competition-mediated coexistence. That is, suppose there are two species with strong competition in an environment. If a third species invades the system, will the competition behaviors between the original two species change or not? Another topics in this talk is the dynamics of some PDE models which describe the shallow or deep water waves. The long-time dynamics of them connect many mathematical structures based on their integrable properties. For example, the inverse scattering transform, a nonlinear version of the Fourier transform, which exhibits the mechanism of the long-time asymptotics.