KdV and Completely Integrable Nonlinear PDEs

Tuncay Aktosun

Department of Mathematics and Statistics
Mississippi State University

Abstract

The initial-value problem for certain nonlinear partial differential equations can be solved by using the so-called inverse scattering transform (IST). Such PDEs are sometimes referred to as "completely integrable". The Korteweg-de Vries equation (KdV) was the first nonlinear PDE solved by the IST. In this talk we outline the history behind the KdV, indicate its importance, and show how the initial-value problem for the KdV is solved by the IST.