

<<孤立子、非线性发展方程和逆散射>>

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内容概要

An exciting and extremely active area of research investigation during the past twenty years has been the study of Solitons and the related issue of the construction of solutions to a wide class of nonlinear equations. Indeed there have been a few books written which serve to review aspect of this burgeoning field. A book coauthored by one of us (MJA) exactly ten years ago, discussed many of the relevant viewpoints as well as a variety of applications. Certain important and novel subareas of research such as the the application of the Inverse Scattering Transform (I.S.T.) to solve nonlinear wave equations on the infinite interval, in one spatial and one temporal dimension ($1 + 1$), were described in detail. At that time the complete inverse scattering methodology had been carried out primarily for those nonlinear equations related to second order scattering problems. Although it was known that certain nonlinear evolution equations in one and two spatial dimensions were related to suitable (higher order and two dimensional) linear scattering problems, and special techniques were available, nevertheless it was not yet clear that a unified and effective procedure could be applied to all of these nonlinear equations. The main purpose of this book is the description of how the I.S.T. technique can be applied to these situations.

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