

<<孤子波>>

图书基本信息

书名：<<孤子波>>

13位ISBN编号：9787506241052

10位ISBN编号：7506241056

出版时间：1999-4

出版时间：世界图书出版公司

作者：M.Remoissenet

页数：260

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

## &lt;&lt;孤子波&gt;&gt;

## 内容概要

Chapter 1 was expanded by a discussion of the discovery of solitons in the field of electromagnetic waves and optics. A new section devoted to nonlinear transmission lines and their applications in the microwave range has been added to Chap. 3. It seems to me that it was important to describe laboratory experiments on modulational instability, and subsequent generation of solitons, both in electrical transmission lines and in deep water in Chaps. 4 and 5. A description of a very simple experimental pocket version of the mechanical transmission line has been included in Chap. 6. Such a versatile and useful device should stimulate a practical approach to soliton physics. Chapter 7 was completed by a short presentation of some recent experimental results on discrete Josephson transmission lines. A discussion of the experimental modulational instability of coupled optical waves and a simple look at quantum solitons were added to Chap. 8 in order to introduce the reader to such remarkable topics.

## 书籍目录

1 Basic Concepts and the Discovery of Solitons. 1.1 A look at linear and nonlinear signatures. 1.2 Discovery of the solitary wave 1.3 Discovery of the soliton 1.4 The soliton concept in physics

2 Linear' VVaves in Electrical Transmission Lines 2.1 Linear nondispersive waves 2.2 Sinusoidal-wave characteristics 2.2.1 Wave energy density and power 2.3 The group-velocity concept 2.4 Linear dispersive waves 2.4.1 Dispersive transmission lines 2.4.2 Electrical network 2.4.3 The weakly dispersive limit 2.5 Evolution of a wavepacket envelope 2.6 Dispersion-induced wavepacket broadening. Appendix 2A. General solution for the envelope evolution. Appendix 2B Evolution of the envelope of a Gaussian wavepacket.

3 Solitons in Nonlinear Transmission Lines 3.1 Nonlinear and dispersionless transmission lines 3.2 Combined effects of dispersion and nonlinearity 3.3 Electrical solitary waves and pulse solitons 3.4 Laboratory experiments on pulse solitons 3.4.1 Experimental arrangement 3.4.2 Series of experiments 3.5 Experiments with a pocket version of the electrical network 3.6 Nonlinear transmission lines in the microwave range Appendix 3A. Calculation of the effect of nonlinearity on wave propagation Appendix 3B. Derivation of the solitary-wave solution Appendix 3C. Derivation of the KdV equation and its soliton solution Appendix 3D Details of the electronics:switch driver and pulse generator

4 More on Transmission-Line Solitons 4.1 Lattice solitons in the electrical Toda network 4.1.1 Lattice solitons 4.2 Experiments on lattice solitons 4.2.1 Collisions of two lattice soliton smovine in opposite directions. 4.2.2 The Fermi-Pasta-LJlam recurrence phenomenon 4.3 Periodic wavetrains in transmission lines 4.3.1 The solitary wave limit and sinusoidal limit of the cnoidal wave. 4.4 Modulated waves and the nonlinear dispersion relation 4.5 Envelope and hole solitons 4.5.1 Experiments on envelope and hole soliton 4.6 Modulational instability 4.7 Laboratory experiments on modulational instability 4.7.1 Model equations 4.7.2 Experiments 4.8 Modulational instability of two coupled waves Appendix 4A. Periodic wavetrain solutions Appendix 4B. The Jacobi elliptic functions 4B.1 Asymptotic limits. 4B.2 Derivatives and integrals Appendix 4C Envelope and hole soliton solutions

5 Hydrodynamic Solitons 5.1 Equations for surface water waves 5.1.1 Reduced fluid equations 5.2 Small-amplitude surface gravity waves .....6 Mcchanical Solitons7 Fluxons in Josephson Transmission Lines8 Solitons in Optical Fibers9 The Soliton Concept in Lattice Dynamics10 A Look at Some Remarkable Mathematical TechniquesReferencesSubject Index

<<孤子波>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介, 请支持正版图书。

更多资源请访问:<http://www.tushu007.com>