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<<非线性双曲型方程的一些问题与应用>>

图书基本信息

书名：<<非线性双曲型方程的一些问题与应用>>

13位ISBN编号：9787040292220

10位ISBN编号：704029222X

出版时间：2010-6

出版时间：高等教育出版社

作者：李大潜 等主编

页数：452

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前言

This book is a collection of manuscripts from lectures given in the French-Chinese Summer Institute on Applied Mathematics, which was held at the School of Mathematical Sciences of Fudan University from September I to September 21, 2008. This Institute was mainly sponsored by the Centre National de Recherche Scientifique (CNRS) and the National Natural Science Foundation of China (NSFC). The activities were organized by the Institut Sino-Frangais de Mathematiques Appliquees (ISFMA). There were more than 70 participants, including graduate students, postdoctors and junior faculty members from universities and research institutions in China and France. This volume is entitled Some Problems on Nonlinear Hyperbolic Equations and Applications. The volume is composed of two parts: Mathematical and Numerical Analysis for Strongly Nonlinear Plasma Models and Exact Controllability and Observability for Quasilinear Hyperbolic Systems and Applications, which represent two subjects of the Institute.These topics are important not only for industrial applications but also for the theory of partial differential equations itself. The main propose of the Institute was to present recent progress and results obtained in the domains related to both subjects and to organize discussions for studying important problems by sustainable collaborations. We hope that this experience will be useful for the activities of the French-Chinese collaboration in the future. During the activities of the Institute, more than 30 lectures of 50 minutes each were delivered. The speakers gave their presentation without attaching much importance to the details of proofs but rather to difficulties encountered, to open problems and possible ways to be exploited. Each lecture was followed by a free discussion of 30 minutes, so that the participants were able to clarify the situation of each problem and to find interesting subjects to be cooperated in the future. Three mini-courses of 3 x 1.5 hours each were given by Jean-Michel Coron (Universite Paris 6, France), Vilmos Komornik (Universite Louis Pasteur de Strasbourg, France) on the control theory and by Thierry Goudon (INRIA Lille-Nord Europe, France) on the mathematical theory for plasmas.The mini-course notes were prepared for all the students before the activities of the Institute. Moreover, in the middle and before the end of the Institute, we organized two sessions of general discussion on the open problems for future investigations by collaboration. The editors would like to express their sincere thanks to all the authors in this volume for their contributions and to all the participants in the Summer Institute. Liqiang Lu, Zhiqiang Wang and Chunlian Zhou deserve our special thanks for their prompt and effective assistance to make the Institute run smoothly. The editors are grateful to the Centre National de Recherche Scientifique (CNRS), the Consulate General of France in Shanghai, the French Embassy in Beijing, the Institut SinoFrangais de Mathematiques Appliqnees (ISFMA), the National Natural Science Foundation of China (NSFC) and the School of Mathematical Sciences of Fudan University for their help and support. Finally, the editors wish to thank Tianfu Zhao (Senior Editor, Higher Education Press) and Chunlian Zhou for their patience and professional assistance.

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内容概要

本书是现代应用数学丛书中的一本，主要对非线性双曲型方程的一些问题与应用知识作了介绍。
全书分为两部分：强非线性等离子体模型中的数学与数值分析(Mathematical and Numerical Analysis for Strongly Nonlinear Plasma Models)，拟线性双曲线系统的精确可控性和可观察性及其应用(Exact Controllability and Observability for Quasilinear Hyperbolic Systems and Applications)。
该书可供各大专院校作为教材使用，也可供从事相关工作的人员作为参考用书使用。

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书籍目录

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