

The Cauchy Problem for Higher-Order KP Equations

J. C. Saut and N. Tzvetkov

Analyse numérique et EDP, Université de Paris Sud, Bât. 425, 91405 Orsay Cedex, France

Received April 13, 1998; revised July 7, 1998

We study the local well-posedness of higher-order KP equations. Our well-posedness results make an essential use of a global smoothing effect for the linearized equation established in Ben-Artzi and Saut (preprint, 1997), injected into the framework of Fourier transform restriction spaces introduced by Bourgain. Our ill-posedness results rely on the existence of solitary wave solutions and on scaling arguments. The method was first applied in the context of the KdV and Schrödinger equations (cf. Birnir *et al.*, *Ann. Inst. H. Poincaré Anal. Non Linéaire* **13** (1996), 529–535; Birnir *et al.*, *J. London Math. Soc.* **53** (1996), 551–559). © 1999 Academic Press

1. INTRODUCTION

This paper is concerned with the Cauchy problem associated to Kadomtsev–Petviashvili (KP) equations having higher order dispersion in the main direction of propagation. Such equations occur naturally in the modeling of certain long dispersive waves (cf. [2, 15, 16]). The study of their solitary wave solutions was done in [6, 7]. Thus we consider the Cauchy problems in \mathbf{R}^d , $d = 2, 3$

$$\begin{cases} (u_t + \alpha u_{xxx} + \beta u_{xxxxx} + uu_x)_x + u_{yy} = 0 \\ u(0, x, y) = \phi(x, y) \end{cases} \quad (1)$$

in the two dimensional case and

$$\begin{cases} (u_t + \alpha u_{xxx} + \beta u_{xxxxx} + uu_x)_x + u_{yy} + u_{zz} = 0 \\ u(0, x, y, z) = \phi(x, y, z) \end{cases} \quad (2)$$

in the three dimensional case. The “usual” KP equations correspond to $\beta = 0$ and $\alpha = -1$ (KP-I) or $\alpha = +1$ (KP-II). We are interested in the local well-posedness of the Cauchy problems (1) and (2). Following [4] and [13] we introduce the notion for well-posedness which will be convenient for our purposes.

Cauchy Problem For Higher Order Abstract Differential Equations

**Bingren Li, Shengwang
Wang, Shaozong Yan, Chung-Chun Yang**

Cauchy Problem For Higher Order Abstract Differential Equations:

The Cauchy Problem for Higher Order Abstract Differential Equations Ti-Jun Xiao, Jin Liang, 2013-12-11 The main purpose of this book is to present the basic theory and some recent developments concerning the Cauchy problem for higher order abstract differential equations $u^{(n)} + A_{n-1}u^{(n-1)} + \dots + A_1u' + A_0u = f$ where A_0, A_1, \dots, A_{n-1} are linear operators in a topological vector space E . Many problems in nature can be modeled as ACP. For example many initial value or initial boundary value problems for partial differential equations stemmed from mechanics physics engineering control theory etc can be translated into this form by regarding the partial differential operators in the space variables as operators A_i in some function space E and letting the boundary conditions if any be absorbed into the definition of the space E or of the domain of A_i . This idea of treating initial value or initial boundary value problems was discovered independently by E. Hille and K. Yosida in the forties. The theory of ACP is closely connected with many other branches of mathematics. Therefore the study of ACP is important for both theoretical investigations and practical applications. Over the past half a century ACP has been studied extensively.

The Cauchy Problem for Higher Order Abstract Differential Equations Ti-Jun Xiao, Jin Liang, 2014-09-01

The Cauchy Problem Hector O. Fattorini, 1983 This volume deals with the Cauchy or initial value problem for linear differential equations. It treats in detail some of the applications of linear space methods to partial differential equations especially the equations of mathematical physics such as the Maxwell Schrödinger and Dirac equations. Background material presented in the first chapter makes the book accessible to mathematicians and physicists who are not specialists in this area as well as to graduate students.

Abstract Volterra Integro-Differential Equations Marko Kostic, 2015-05-06 The theory of linear Volterra integro differential equations has been developing rapidly in the last three decades. This book provides an easy to read concise introduction to the theory of ill posed abstract Volterra integro differential equations. A major part of the research is devoted to the study of various types of abstract multi term fracti

Improperly Posed Problems in Partial Differential Equations L. E. Payne, 1975-06-01 A discussion of improperly posed Cauchy problems in partial differential equations.

Functional Analysis in China Bingren Li, Shengwang Wang, Shaozong Yan, Chung-Chun Yang, 2012-12-06 Functional Analysis has become one of the main branches in Chinese mathematics. Many outstanding contributions and results have been achieved over the past sixty years. This authoritative collection is complementary to Western studies in this field and seeks to summarise and introduce the historical progress of the development of Functional Analysis in China from the 1940s to the present. A broad range of topics is covered such as nonlinear functional analysis linear operator theory theory of operator algebras applications including the solvability of some partial differential equations and special spaces that contain Banach spaces and topological vector spaces. Some of these papers have made a significant impact on the mathematical community worldwide. Audience: This volume will be of interest to mathematicians physicists and engineers at postgraduate level.

Beyond Partial Differential Equations Horst Reinhard

Beyer,2007-04-10 This book introduces the treatment of linear and nonlinear quasi linear abstract evolution equations by methods from the theory of strongly continuous semigroups The theoretical part is accessible to graduate students with basic knowledge in functional analysis with only some examples requiring more specialized knowledge from the spectral theory of linear self adjoint operators in Hilbert spaces Emphasis is placed on equations of the hyperbolic type which are less often treated in the literature

Operator Theory and Its Applications Alexander G. Ramm,P. N. Shivakumar,Abraham Vilgelmovich Strauss, This volume contains a selection of papers presented at an international conference on operator theory and its applications held in Winnipeg The papers chosen for this volume are intended to illustrate that operator theory is the language of modern analysis and its applications Together with the papers on the abstract operator theory are many papers on the theory of differential operators boundary value problems inverse scattering and other inverse problems and on applications to biology chemistry wave propagation and many other areas The volume is dedicated to the late A V Strauss whose principal areas of research were spectral theory of linear operators in Hilbert spaces extension theory for symmetric linear operators theory of the characteristic functions and functional models of linear operators and boundary value problems with boundary conditions depending on spectral parameter The bibliography of publications by A V Strauss combined with the papers from the conference provide both historical perspective and contemporary research on the field of operator theory and its applications

Pacific Journal of Mathematics ,1988-12 **Mathematical Reviews** ,2005 **Some Aspects of Cauchy's Problem** Einar Hille,1954 *Abstracts of Papers Presented to the American Mathematical Society* American Mathematical Society,1993 **Proceedings of the American Mathematical Society** American Mathematical Society,2002 Contains the material formerly published in even numbered issues of the Bulletin of the American Mathematical Society **Technical Abstract Bulletin** Defense Documentation Center (U.S.),1964 **Demonstratio mathematica** ,1990 **Lectures on Cauchy's Problem in Linear Partial Differential Equations** Jacques Hadamard,1923 *Conferenze* Università di Bari. Seminario di matematica,1994 **Semesterbericht Funktionalanalysis** ,1990 **Improperly Posed Boundary Value Problems** Alfred Carasso,Alex P. Stone,1975 *Annales Polonici mathematici* ,2005

Recognizing the habit ways to acquire this ebook **Cauchy Problem For Higher Order Abstract Differential Equations** is additionally useful. You have remained in right site to start getting this info. get the Cauchy Problem For Higher Order Abstract Differential Equations associate that we find the money for here and check out the link.

You could buy guide Cauchy Problem For Higher Order Abstract Differential Equations or acquire it as soon as feasible. You could quickly download this Cauchy Problem For Higher Order Abstract Differential Equations after getting deal. So, similar to you require the book swiftly, you can straight acquire it. Its therefore utterly easy and therefore fats, isnt it? You have to favor to in this tune

https://gandalf.roeckerfam.com/files/uploaded-files/HomePages/Algonquin_Story_Maps.pdf

Table of Contents Cauchy Problem For Higher Order Abstract Differential Equations

1. Understanding the eBook Cauchy Problem For Higher Order Abstract Differential Equations
 - The Rise of Digital Reading Cauchy Problem For Higher Order Abstract Differential Equations
 - Advantages of eBooks Over Traditional Books
2. Identifying Cauchy Problem For Higher Order Abstract Differential Equations
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Cauchy Problem For Higher Order Abstract Differential Equations
 - User-Friendly Interface
4. Exploring eBook Recommendations from Cauchy Problem For Higher Order Abstract Differential Equations
 - Personalized Recommendations
 - Cauchy Problem For Higher Order Abstract Differential Equations User Reviews and Ratings
 - Cauchy Problem For Higher Order Abstract Differential Equations and Bestseller Lists

5. Accessing Cauchy Problem For Higher Order Abstract Differential Equations Free and Paid eBooks
 - Cauchy Problem For Higher Order Abstract Differential Equations Public Domain eBooks
 - Cauchy Problem For Higher Order Abstract Differential Equations eBook Subscription Services
 - Cauchy Problem For Higher Order Abstract Differential Equations Budget-Friendly Options
6. Navigating Cauchy Problem For Higher Order Abstract Differential Equations eBook Formats
 - ePub, PDF, MOBI, and More
 - Cauchy Problem For Higher Order Abstract Differential Equations Compatibility with Devices
 - Cauchy Problem For Higher Order Abstract Differential Equations Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Cauchy Problem For Higher Order Abstract Differential Equations
 - Highlighting and Note-Taking Cauchy Problem For Higher Order Abstract Differential Equations
 - Interactive Elements Cauchy Problem For Higher Order Abstract Differential Equations
8. Staying Engaged with Cauchy Problem For Higher Order Abstract Differential Equations
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Cauchy Problem For Higher Order Abstract Differential Equations
9. Balancing eBooks and Physical Books Cauchy Problem For Higher Order Abstract Differential Equations
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Cauchy Problem For Higher Order Abstract Differential Equations
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Cauchy Problem For Higher Order Abstract Differential Equations
 - Setting Reading Goals Cauchy Problem For Higher Order Abstract Differential Equations
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Cauchy Problem For Higher Order Abstract Differential Equations
 - Fact-Checking eBook Content of Cauchy Problem For Higher Order Abstract Differential Equations
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning

- Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
- Integration of Multimedia Elements
 - Interactive and Gamified eBooks

Cauchy Problem For Higher Order Abstract Differential Equations Introduction

In today's digital age, the availability of Cauchy Problem For Higher Order Abstract Differential Equations books and manuals for download has revolutionized the way we access information. Gone are the days of physically flipping through pages and carrying heavy textbooks or manuals. With just a few clicks, we can now access a wealth of knowledge from the comfort of our own homes or on the go. This article will explore the advantages of Cauchy Problem For Higher Order Abstract Differential Equations books and manuals for download, along with some popular platforms that offer these resources. One of the significant advantages of Cauchy Problem For Higher Order Abstract Differential Equations books and manuals for download is the cost-saving aspect. Traditional books and manuals can be costly, especially if you need to purchase several of them for educational or professional purposes. By accessing Cauchy Problem For Higher Order Abstract Differential Equations versions, you eliminate the need to spend money on physical copies. This not only saves you money but also reduces the environmental impact associated with book production and transportation. Furthermore, Cauchy Problem For Higher Order Abstract Differential Equations books and manuals for download are incredibly convenient. With just a computer or smartphone and an internet connection, you can access a vast library of resources on any subject imaginable. Whether you're a student looking for textbooks, a professional seeking industry-specific manuals, or someone interested in self-improvement, these digital resources provide an efficient and accessible means of acquiring knowledge. Moreover, PDF books and manuals offer a range of benefits compared to other digital formats. PDF files are designed to retain their formatting regardless of the device used to open them. This ensures that the content appears exactly as intended by the author, with no loss of formatting or missing graphics. Additionally, PDF files can be easily annotated, bookmarked, and searched for specific terms, making them highly practical for studying or referencing. When it comes to accessing Cauchy Problem For Higher Order Abstract Differential Equations books and manuals, several platforms offer an extensive collection of resources. One such platform is Project Gutenberg, a nonprofit organization that provides over 60,000 free eBooks. These books are primarily in the public domain, meaning they can be freely distributed and downloaded. Project Gutenberg offers a wide range of classic literature, making it an excellent resource for literature enthusiasts. Another popular platform for Cauchy Problem For Higher Order Abstract Differential Equations books and manuals is Open Library. Open Library is an

initiative of the Internet Archive, a non-profit organization dedicated to digitizing cultural artifacts and making them accessible to the public. Open Library hosts millions of books, including both public domain works and contemporary titles. It also allows users to borrow digital copies of certain books for a limited period, similar to a library lending system. Additionally, many universities and educational institutions have their own digital libraries that provide free access to PDF books and manuals. These libraries often offer academic texts, research papers, and technical manuals, making them invaluable resources for students and researchers. Some notable examples include MIT OpenCourseWare, which offers free access to course materials from the Massachusetts Institute of Technology, and the Digital Public Library of America, which provides a vast collection of digitized books and historical documents. In conclusion, Cauchy Problem For Higher Order Abstract Differential Equations books and manuals for download have transformed the way we access information. They provide a cost-effective and convenient means of acquiring knowledge, offering the ability to access a vast library of resources at our fingertips. With platforms like Project Gutenberg, Open Library, and various digital libraries offered by educational institutions, we have access to an ever-expanding collection of books and manuals. Whether for educational, professional, or personal purposes, these digital resources serve as valuable tools for continuous learning and self-improvement. So why not take advantage of the vast world of Cauchy Problem For Higher Order Abstract Differential Equations books and manuals for download and embark on your journey of knowledge?

FAQs About Cauchy Problem For Higher Order Abstract Differential Equations Books

How do I know which eBook platform is the best for me? Finding the best eBook platform depends on your reading preferences and device compatibility. Research different platforms, read user reviews, and explore their features before making a choice. Are free eBooks of good quality? Yes, many reputable platforms offer high-quality free eBooks, including classics and public domain works. However, make sure to verify the source to ensure the eBook credibility. Can I read eBooks without an eReader? Absolutely! Most eBook platforms offer webbased readers or mobile apps that allow you to read eBooks on your computer, tablet, or smartphone. How do I avoid digital eye strain while reading eBooks? To prevent digital eye strain, take regular breaks, adjust the font size and background color, and ensure proper lighting while reading eBooks. What the advantage of interactive eBooks? Interactive eBooks incorporate multimedia elements, quizzes, and activities, enhancing the reader engagement and providing a more immersive learning experience. Cauchy Problem For Higher Order Abstract Differential Equations is one of the best book in our library for free trial. We provide copy of Cauchy Problem For Higher Order Abstract Differential Equations in digital format, so the resources that you find are reliable. There are also many Ebooks of related with Cauchy Problem For Higher Order Abstract Differential Equations. Where to download Cauchy

Cauchy Problem For Higher Order Abstract Differential Equations

Problem For Higher Order Abstract Differential Equations online for free? Are you looking for Cauchy Problem For Higher Order Abstract Differential Equations PDF? This is definitely going to save you time and cash in something you should think about. If you trying to find then search around for online. Without a doubt there are numerous these available and many of them have the freedom. However without doubt you receive whatever you purchase. An alternate way to get ideas is always to check another Cauchy Problem For Higher Order Abstract Differential Equations. This method for see exactly what may be included and adopt these ideas to your book. This site will almost certainly help you save time and effort, money and stress. If you are looking for free books then you really should consider finding to assist you try this. Several of Cauchy Problem For Higher Order Abstract Differential Equations are for sale to free while some are payable. If you arent sure if the books you would like to download works with for usage along with your computer, it is possible to download free trials. The free guides make it easy for someone to free access online library for download books to your device. You can get free download on free trial for lots of books categories. Our library is the biggest of these that have literally hundreds of thousands of different products categories represented. You will also see that there are specific sites catered to different product types or categories, brands or niches related with Cauchy Problem For Higher Order Abstract Differential Equations. So depending on what exactly you are searching, you will be able to choose e books to suit your own need. Need to access completely for Campbell Biology Seventh Edition book? Access Ebook without any digging. And by having access to our ebook online or by storing it on your computer, you have convenient answers with Cauchy Problem For Higher Order Abstract Differential Equations To get started finding Cauchy Problem For Higher Order Abstract Differential Equations, you are right to find our website which has a comprehensive collection of books online. Our library is the biggest of these that have literally hundreds of thousands of different products represented. You will also see that there are specific sites catered to different categories or niches related with Cauchy Problem For Higher Order Abstract Differential Equations So depending on what exactly you are searching, you will be able to choose ebook to suit your own need. Thank you for reading Cauchy Problem For Higher Order Abstract Differential Equations. Maybe you have knowledge that, people have search numerous times for their favorite readings like this Cauchy Problem For Higher Order Abstract Differential Equations, but end up in harmful downloads. Rather than reading a good book with a cup of coffee in the afternoon, instead they juggled with some harmful bugs inside their laptop. Cauchy Problem For Higher Order Abstract Differential Equations is available in our book collection an online access to it is set as public so you can download it instantly. Our digital library spans in multiple locations, allowing you to get the most less latency time to download any of our books like this one. Merely said, Cauchy Problem For Higher Order Abstract Differential Equations is universally compatible with any devices to read.

Find Cauchy Problem For Higher Order Abstract Differential Equations :

[algonquin story maps](#)

[algebra for college students ssm 5th](#)

[alice in wonderland including alices adventures in wonderland and through the looking-glass](#)

alex cox

[alimas heridas](#)

[alias the buffalo doctor](#)

[alice in wonderland and charm](#)

[alexanders horses signed](#)

[algebraic topology homotopy and homology](#)

[alices adventures in wonderland.](#)

algo prohibido

alfred hitchcocks more tales to make your teeth chatter curley large prints

alice in orchestralia

algebra two with trigonometry

[alfa romeo legends](#)

Cauchy Problem For Higher Order Abstract Differential Equations :

RF-425 Operation Manual 808 1. Second Vehicle Security Operation: Your remote transmitter can be utilized to control a second vehicle Autopage security system. To program the remote ... RF-425 - Autopage 4 Channel Vehicle Alarm Security ... Product Features: 4-Channel vehicle alarm security system; Includes a 2-way AM/AM LCD Transmitter and a 5-button companion remote; Ergonomic LCD transceiver ... Auto Page RF-425LCD Installation Manual View and Download Auto Page RF-425LCD installation manual online. PROFESSIONAL VEHICLE SECURITY SYSTEM. RF-425LCD car alarm pdf manual download. AUTOPAGE RF-425A Security Alarm AUTOPAGE RF-425A Security Alarm · 4-Channel vehicle alarm security system · Includes a 2-way AM LCD Transmitter and a 5-button companion remote · Ergonomic LCD ... AUTOPAGE Autopage RF-425 LCD AUTOPAGE Autopage RF-425 LCD. Select the part that best matches the existing remote you would like to replace. Part #075-6066. Click image to view larger. 5 ... Autopage Rf-425 2-way Paging Remote Entry Car Alarm Lcd Autopage Rf-425 2-way Paging Remote Entry Car Alarm Lcd. 3.5 out of 5 stars2 product ratings. More items related to this product. AutoPage RF-425LCD 4 Channel Car Security System with 2-Way AM/AM LCD Transmitter featuring Starter Disable

Cauchy Problem For Higher Order Abstract Differential Equations

and Keyless Entry. Item #24629 ... AutoPage RF-425 LCD 4-Channel Vehicle Alarm Security ... Brand new - AutoPage RF-425 LCD 4-Channel Vehicle Alarm Security System at Sonic Electronix. AutoPage RF-425LCD Four Channel Security System with Plug-in Push-type Valet/Override Switch; Plug-in Super Bright LED; Starter Disable with Relay and Socket; Dome light Illuminated Entry; 1 Positive, 4 Negative ... Conceptual Foundations of Occupational Therapy Practice This book espoused the view that occupation was the central idea that led to the field's emergence and remained its best hope as a central theme in the field. I ... Conceptual Foundations of Occupational Therapy Practice Thoroughly revised and updated, the 4th Edition of this groundbreaking text traces the historical development of the foundations of modern occupational therapy ... Conceptual Foundations of Occupational Therapy Practice Conceptual Foundations of Occupational Therapy Practice: 9780803620704: Medicine & Health Science Books @ Amazon.com. Conceptual Foundations of Occupational Therapy Practice Thoroughly revised and updated, the 4th Edition of this groundbreaking text traces the historical development of the foundations of modern occupational therapy ... Conceptual Foundations of Occupational Therapy Practice ... Thoroughly revised and updated, the 4th Edition of this groundbreaking text traces the historical development of the foundations of modern occupational ... Conceptual Foundations of Occupational Therapy Practice Buy Conceptual Foundations of Occupational Therapy Practice: Read Kindle Store Reviews - Amazon ... 4th Edition4th Edition. 4.6 4.6 out of 5 stars 39 Reviews. Conceptual foundations of occupational therapy practice "Prepare your OT students to become OT thinkers. Thoroughly revised and updated, the 4th Edition of this groundbreaking text traces the historical ... Conceptual foundations of occupational therapy practice ... Conceptual foundations of occupational therapy practice, 4th ed. Kielhofner, Gary. F.A. Davis. 2009. 315 pages. \$66.95. Hardcover. Save money on textbooks and course materials In partnership with the University of Minnesota Bookstores, the University Libraries provides you with a list of free U of M required books. Conceptual Foundations of Occupational Therapy, 4th ... This title offers the most comprehensive coverage of theories in the field. It presents a framework for understanding what kind of knowledge is needed to ... Projects & Layouts (California Missions) by Nelson, Libby Gives instructions for building a model of a California mission building. Also includes a brief history of the missions and their building techniques. California Missions Projects and Layouts (Exploring ... This companion volume to the Exploring California Missions series features step-by-step instructions on how to draw, color, and assemble mission projects. PROJECTS & LAYOUTS : California Missions 104pp. Hardback with glossy illustrated boards, VG, index, Making models of California Missions out of cardboard, sugar cubes or modeling dough or sand clay ... California Missions Projects and Layouts... book by Kari ... This companion volume to the Exploring California Missions series features step-by-step instructions on how to draw, color, and assemble mission projects. California Missions Projects and Layouts Synopsis: This companion volume to the Exploring California Missions series features step-by-step instructions on how to draw, color, and assemble mission ... 7 California missions 4th grade project ideas May 22, 2014 - Explore Jennifer Hammett's board

"California missions 4th grade project" on Pinterest. See more ideas about california missions, missions, ... Projects & Layouts (California... book by Kari Cornell This book offered a variety of mix and match options for mission building. The text and drawings were easy to understand. Highly recommended! One of the most ... Projects And Layouts: California Missions - We have 8 copies of Projects and Layouts: California Missions for sale starting from \$1.43. California Missions Projects and Layouts (Exploring ... California Missions Projects and Layouts (Exploring California Missions) [Nelson, Libby, Cornell, Kari] on Amazon.com. *FREE* shipping on qualifying offers.