Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics)

Juan J. Morales Ruiz

Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics)

Juan J. Morales Ruiz

Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics)
Juan J. Morales Ruiz

This book is devoted to the relation between two different concepts of integrability: the complete integrability of complex analytical Hamiltonian systems and the integrability of complex analytical linear differential equations. For linear differential equations, integrability is made precise within the framework of differential Galois theory. The connection of these two integrability notions is given by the variational equation (i.e. linearized equation) along a particular integral curve of the Hamiltonian system. The underlying heuristic idea, which motivated the main results presented in this monograph, is that a necessary condition for the integrability of a Hamiltonian system is the integrability of the variational equation along any of its particular integral curves. This idea led to the algebraic non-integrability criteria for Hamiltonian systems. These criteria can be considered as generalizations of classical non-integrability results by Poincaré and Lyapunov, as well as more recent results by Ziglin and Yoshida. Thus, by means of the differential Galois theory it is not only possible to understand all these approaches in a unified way but also to improve them. Several important applications are also included: homogeneous potentials, Bianchi IX cosmological model, three-body problem, Hénon-Heiles system, etc.

The book is based on the original joint research of the author with J.M. Peris, J.P. Ramis and C. Simó, but an effort was made to present these achievements in their logical order rather than their historical one. The necessary background on differential Galois theory and Hamiltonian systems is included, and several new problems and conjectures which open new lines of research are proposed.

- - -

The book is an excellent introduction to non-integrability methods in Hamiltonian mechanics and brings the reader to the forefront of research in the area. The inclusion of a large number of worked-out examples, many of wide applied interest, is commendable. There are many historical references, and an extensive bibliography.
(Mathematical Reviews)

For readers already prepared in the two prerequisite subjects [differential Galois theory and Hamiltonian dynamical systems], the author has provided a logically accessible account of a remarkable interaction between differential algebra and dynamics.
(Zentralblatt MATH)

Download and Read Free Online Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) Juan J. Morales Ruiz

Download and Read Free Online Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) Juan J. Morales Ruiz

---

From reader reviews:

Kenny Grant:

Your reading sixth sense will not betray you actually, why because this Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) guide written by well-known writer who really knows well how to make book that could be understand by anyone who read the book. Written within good manner for you, still dripping wet every ideas and composing skill only for eliminate your hunger then you still question Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) as good book not only by the cover but also by the content. This is one guide that can break don't evaluate book by its include, so do you still needing another sixth sense to pick this particular!? Oh come on your reading through sixth sense already alerted you so why you have to listening to another sixth sense.

Ollie Nadeau:

Reading a book to become new life style in this year; every people loves to go through a book. When you study a book you can get a lots of benefit. When you read books, you can improve your knowledge, since book has a lot of information on it. The information that you will get depend on what forms of book that you have read. If you would like get information about your research, you can read education books, but if you want to entertain yourself look for a fiction books, such us novel, comics, as well as soon. The Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) will give you new experience in reading through a book.

Tracy Rojas:

You can get this Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by browse the bookstore or Mall. Merely viewing or reviewing it could to be your solve problem if you get difficulties for the knowledge. Kinds of this book are various. Not only by written or printed but additionally can you enjoy this book by e-book. In the modern era similar to now, you just looking of your mobile phone and searching what their problem. Right now, choose your own personal ways to get more information about your guide. It is most important to arrange you to ultimately make your knowledge are still change. Let's try to choose right ways for you.

Doris Whobrey:

Reserve is one of source of knowledge. We can add our knowledge from it. Not only for students but also native or citizen have to have book to know the revise information of year to be able to year. As we know those guides have many advantages. Beside we add our knowledge, can also bring us to around the world. By the book Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) we can take more advantage. Don't you to be creative people? For being creative person must want to read a book. Only choose the best book that acceptable with your aim. Don't be doubt to change your

life at this book Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics). You can more pleasing than now.

Download and Read Online Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) Juan J. Morales Ruiz #48MG732T6WP

Read Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz for online ebook

Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz books to read online.

Online Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz ebook PDF download

Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz Doc

Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz Mobipocket

Differential Galois Theory and Non-Integrability of Hamiltonian Systems (Progress in Mathematics) by Juan J. Morales Ruiz EPub