

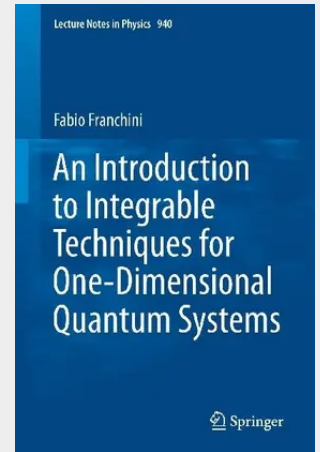
An Introduction to Integrable Techniques for One-Dimensional Quantum Systems

This book introduces the reader to basic notions of integrable techniques for one-dimensional quantum systems. In a pedagogical way, a few examples of exactly solvable models are worked out to go from the coordinate approach to the Algebraic Bethe Ansatz, with some discussion on the finite temperature thermodynamics.

The aim is to provide the instruments to approach more advanced books or to allow for a critical reading of research articles and the extraction of useful information from them. We describe the solution of the anisotropic XY spin chain; of the Lieb-Liniger model of bosons with contact interaction at zero and finite temperature; and of the XXZ spin chain, first in the coordinate and then in the algebraic approach. To establish the connection between the latter and the solution of two dimensional classical models, we also introduce and solve the 6-vertex model. Finally, the low energy physics of these integrable models is mapped into the corresponding conformal field theory. Through its style and the choice of topics, this book tries to touch all fundamental ideas behind integrability and is meant for students and researchers interested either in an introduction to later delve in the advance aspects of Bethe Ansatz or in an overview of the topic for broadening their culture.

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