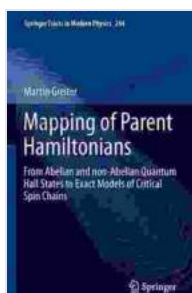


# Mapping of Parent Hamiltonians

## A Comprehensive Guide to the Foundations of Quantum Mechanics

The mapping of parent Hamiltonians is a fundamental concept in quantum mechanics. It provides a way to understand the relationship between different quantum systems, and it can be used to derive new physical insights. This book provides a comprehensive and detailed analysis of the mapping of parent Hamiltonians, and it is suitable for both graduate students and researchers in the field of quantum mechanics.



## Mapping of Parent Hamiltonians: From Abelian and non-Abelian Quantum Hall States to Exact Models of Critical Spin Chains (Springer Tracts in Modern Physics Book 244) by Martin Greiter

★★★★☆ 4.4 out of 5

Language	: English
File size	: 58028 KB
Text-to-Speech	: Enabled
Enhanced typesetting	: Enabled
Print length	: 390 pages
Screen Reader	: Supported
Paperback	: 24 pages
Item Weight	: 4 ounces
Dimensions	: 8.27 x 0.06 x 11.69 inches



In quantum mechanics, the Hamiltonian operator is a fundamental operator that describes the total energy of a system. The parent Hamiltonian is a special type of Hamiltonian operator that can be used to generate other

Hamiltonian operators. The mapping of parent Hamiltonians is the process of finding the relationship between a parent Hamiltonian and the other Hamiltonian operators that can be generated from it.

## **Methods for Mapping Parent Hamiltonians**

There are a number of different methods that can be used to map parent Hamiltonians. One common method is the use of canonical transformations. Canonical transformations are mathematical transformations that preserve the symplectic structure of a system. This means that they preserve the fundamental relationships between the positions and momenta of the particles in the system.

Another common method for mapping parent Hamiltonians is the use of group theory. Group theory is the study of symmetry, and it can be used to identify the symmetries of a system. The symmetries of a system can be used to find the conserved quantities of the system, and these conserved quantities can be used to map the parent Hamiltonian.

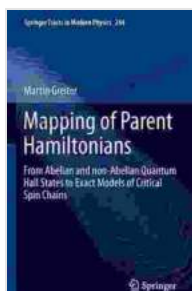
## **Applications of the Mapping of Parent Hamiltonians**

The mapping of parent Hamiltonians has a number of applications in quantum mechanics. One application is the derivation of new physical insights. By mapping a parent Hamiltonian to a different Hamiltonian operator, it is possible to gain new insights into the physics of the system. This can lead to the discovery of new physical phenomena.

Another application of the mapping of parent Hamiltonians is the design of new quantum algorithms. Quantum algorithms are algorithms that are designed to be run on quantum computers. By mapping a parent

Hamiltonian to a different Hamiltonian operator, it is possible to design new quantum algorithms that are more efficient or that can solve new problems.

The mapping of parent Hamiltonians is a fundamental concept in quantum mechanics. It provides a way to understand the relationship between different quantum systems, and it can be used to derive new physical insights and to design new quantum algorithms. This book provides a comprehensive and detailed analysis of the mapping of parent Hamiltonians, and it is suitable for both graduate students and researchers in the field of quantum mechanics.



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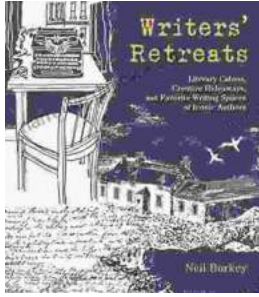
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