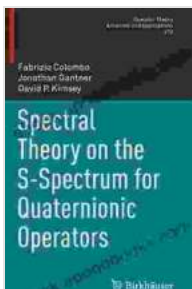


# Spectral Theory on the Spectrum for Quaternionic Operators

Spectral theory is a fundamental branch of mathematics that studies the properties of linear operators on a Hilbert space. It has applications in various fields such as quantum mechanics, signal processing, and numerical analysis.

Quaternionic operators are a generalization of complex operators to the quaternions, which are a four-dimensional extension of the complex numbers. Quaternionic operators have applications in areas such as representation theory, geometric algebra, and computer graphics.



## Spectral Theory on the S-Spectrum for Quaternionic Operators (Operator Theory: Advances and Applications Book 270) by Robert Grant

★★★★☆ 4.2 out of 5

Language : English

File size : 8445 KB

Screen Reader: Supported

Print length : 365 pages



Spectral theory for quaternionic operators is a relatively new field of study, and there are still many open questions. However, significant progress has been made in recent years, and this book provides a comprehensive overview of the current state of the art.

The book is divided into three parts. The first part provides an to quaternionic operators and the basic concepts of spectral theory. The second part covers the spectral theory of bounded quaternionic operators, and the third part covers the spectral theory of unbounded quaternionic operators.

The book is written in a clear and concise style, and it is suitable for graduate students and researchers in mathematics and physics. It is also a valuable resource for anyone who is interested in learning more about spectral theory.

### **Part 1:**

The first part of the book provides an to quaternionic operators and the basic concepts of spectral theory. It covers the following topics:

- Quaternions and quaternionic vector spaces
- Quaternionic algebras
- Quaternionic operators
- The spectrum of a quaternionic operator
- The resolvent set and the essential spectrum
- The spectral radius

### **Part 2: Spectral Theory of Bounded Quaternionic Operators**

The second part of the book covers the spectral theory of bounded quaternionic operators. It covers the following topics:

- The spectral theorem for bounded quaternionic operators

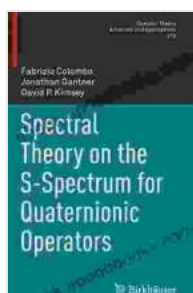
- The eigenprojection theorem
- The singular value decomposition
- The polar decomposition
- The canonical form of a bounded quaternionic operator

### Part 3: Spectral Theory of Unbounded Quaternionic Operators

The third part of the book covers the spectral theory of unbounded quaternionic operators. It covers the following topics:

- The spectral theorem for unbounded quaternionic operators
- The essential spectrum of an unbounded quaternionic operator
- The self-adjointness of an unbounded quaternionic operator
- The normality of an unbounded quaternionic operator
- The compactness of an unbounded quaternionic operator

This book provides a comprehensive overview of the spectral theory of quaternionic operators. It is a valuable resource for graduate students and researchers in mathematics and physics, and for anyone who is interested in learning more about spectral theory.



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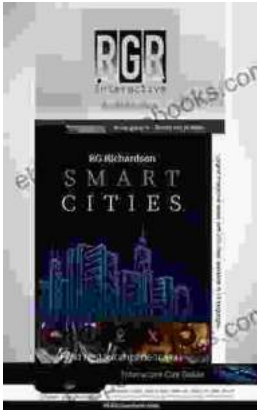
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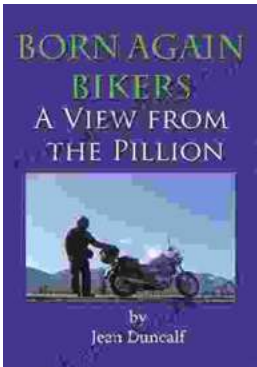
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