

<<相空间中的调和与分析>>

图书基本信息

书名：<<相空间中的调和与分析>>

13位ISBN编号：9787510005428

10位ISBN编号：7510005426

出版时间：2009-8

出版时间：世界图书出版公司

作者：Gerald B. Folland

页数：277

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

## &lt;&lt;相空间中的调和与分析&gt;&gt;

## 前言

The phrase "harmonic analysis in phase space" is a concise if somewhat inadequate name for the area of analysis on  $\mathbb{R}^n$  that involves the Heisenberg group, quantization, the Weyl operational calculus, the metaplectic representation, wave packets, and related concepts: it is meant to suggest analysis on the configuration space  $\mathbb{R}^n$  done by working in the phase space  $\mathbb{R}^n \times \mathbb{R}^n$ . The ideas that fall under this rubric have originated in several different fields—Fourier analysis, partial differential equations, mathematical physics, representation theory, and number theory, among others. As a result, although these ideas are individually well known to workers in such fields, their close kinship and the cross-fertilization they can provide have often been insufficiently appreciated. One of the principal objectives of this monograph is to give a coherent account of this material, comprising not just an efficient tour of the major avenues but also an exploration of some picturesque byways. Here is a brief guide to the main features of the book. Readers should begin by perusing the Prologue and perhaps refreshing their knowledge about Gaussian integrals by glancing at Appendix A.

Chapter I is devoted to the description of the representations of the Heisenberg group and various integral transforms and special functions associated to them, with motivation from physics. The material in the first eight sections is the foundation for all that follows, although readers who wish to proceed quickly to pseudodifferential operators can skip Sections 1.5-1.7. The main point of Chapter 2 is the development of the Weyl calculus of pseudodifferential operators. As a tool for studying differential equations, the Weyl calculus is essentially equivalent to the standard Kohn-Nirenberg calculus—in fact, this equivalence is the principal result of Section 2.2—but it is somewhat more elegant and more natural from the point of view of harmonic analysis. Its close connection with the Heisenberg group yields some insights which are useful in the proofs of the Calderón-Vaillancourt  $(0, 0)$  estimate and the sharp Grding inequality in Sections 2.5 and 2.6 and in the arguments of Section 3.1. Since my aim is to provide a reasonably accessible introduction rather than to develop a general theory (in contrast to Hörmander [70]), I mainly restrict attention to the standard symbol classes  $S$ .

## <<相空间中的调和分析>>

### 内容概要

The phrase "harmonic analysis in phase space" is a concise if somewhat inadequate name for the area of analysis on  $\mathbb{R}^n$  that involves the Heisenberg group, quantization, the Weyl operational calculus, the metaplectic representation, wave packets, and related concepts: it is meant to suggest analysis on the configuration space  $\mathbb{R}^n$  done by working in the phase space  $\mathbb{R}^n \times \mathbb{R}^n$ . The ideas that fall under this rubric have originated in several different fields—Fourier analysis, partial differential equations, mathematical physics, representation theory, and number theory, among others.

<<相空间中的调和分析>>

书籍目录

Preface Prologue . Some Matters of Notation  
CHAPTER 1 . THE HEISENBERG GROUP AND ITS REPRESENTATIONS  
CHAPTER 2 . QUANTIZATION AND PSEUDODIFFERENTIAL OPERATORS  
CHAPTER 3. WAVE PACKETS AND WAVE FRONTS  
CHAPTER 4. THE METAPLECTIC REPRESENTATION  
CHAPTER 5. THE OSCILLATOR SEMIGROUP Appendix A. Gaussian Integrals and a Lemma on Determinants  
Appendix B. Some Hilbert Space Results  
Bibliography  
Index

<<相空间中的调和分析>>

编辑推荐

The main point of Chapter 2 is the development of the Weyl calculus of pseudodifferential operators.

<<相空间中的调和与分析>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>