<<量子场的分析方面ANALYTIC>>

图书基本信息

书名:<<量子场的分析方面ANALYTIC ASPECTS OF QUANTUM FIELDS>>

13位ISBN编号: 9789812383648

10位ISBN编号:9812383646

出版时间:2003-12

出版时间: Pengiun Group (USA)

作者: Andrei A. Bytsenko 著

页数:350

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

<<量子场的分析方面ANALYTIC>>

内容概要

One of the aims of this book is to explain in a basic manner the seemingly difficult issues of mathematical structure using some specific examples as a guide. In each of the cases considered, a comprehensible physical problem is approached, to which the corresponding mathematical scheme is applied, its usefulness being duly demonstrated. The authors try to fill the gap that always exists between the physics of quantum field theories and the mathematical methods best suited for its formulation, which are increasingly demanding on the mathematical ability of the physicist.

<<量子场的分析方面ANALYTIC>>

书籍目录

Chapter 1 Survey of Path Integral Quantization and Regu- larization Techniques 1.1 Path Integral and Regularization Techniques for Functional De-terminants 1.2 Schwinger-Like Regularizations and Heat-Kernel 1.3 Logarithmic Terms in the Heat-Kernel Expansion 1.4 One-Loop Renormalization Group 1.5 Static Spacetimes: Thermodynamic Effects 1.5.1 Static and ultrastatic spacetimes Equations 1.5.2 Finite-temperature effects 1.5.3 The free energy 1.5.4 The thermodynamic potential Regularization of the vacuum energy 1.5.6 A generalized vacuum energy formula Chapter 2 The Zeta-Function Regularization Method 2.1 Survey of the Chapter, Notation and Conventions 2.1.1 Feasibility of physical interpretation via Wick rotation 2.1.2 Notation and general hypotheses 2.2 Heat-Kernel Expansion and Coefficients 2.2.1 The heat-kernel expansion on compact manifolds 2.2.2 The self-adjoint extension 2.2.3 Existence of the (differentiated) heat-kernel expansion 2.2.4 The heat-kernel coefficients 2.3 Local and Global Spectral Zeta Functions on Compact Manifolds 2.3.1 Weyl's 2.3.2 Spectral zeta functions 2.4 Effective Action, Effective Lagrangian and Green asymptotic formulae **Functions** 2.4.1 Comparison with the point-splitting regularization procedure 2.4.2 Green functions and zeta functions 2.4.3 Differential calculus of the heat kernel and local zeta functions 2.5 Noncompact Manifolds and Manifolds with a Boundary 2.6 The Stress-Energy Tensor and Field-Fluctuation Regularization 2.6.1 The stress-energy tensor 2.6.2 Zeta-function regularization of the stress-energy tensor and the field fluctuation 2.6.3 The regularized stress tensor and its properties 2.6.4 On the physical interpretation :Chapter 3 Generalized Spectra and Spectral Functions on Non-commutative Spaces 3.1 Extended Chowla-Selberg Formulae and Arbitrary Spectral Forms 3.2 Barnes and Related Zeta Functions 3.2.1 The two-dimensional case 3.2.2 The D-dimensional case 3.3 Spectral Zeta Functions for Scalar and Vector Fields on a Space-time with a Non-commutative Toroidal Part 3.3.1 Poles of the zeta function 3.3.2 Explicit analytic continuation of sa(s) 3.4 Applications to Quantum Field Theory in Non-commutative Space 3.4.1 Finite-temperature partition function 3.4.2 The spectral zeta function and the regularized vacuum 3.4.3 The regularized vacuum energy 3.4.4 High-temperature expansionChapter 4 Spectral Functions of Laplace Operator on Locally Symmetric Spaces 4.1 Locally Symmetric Spaces of Rank One... ... Chapter 5 Spinor FieldsChapter 6 Field Fluctuations and Related VariancesChapter 7 The Multiplicative AnomalyChapter 8 Applications of the Multiplicative AnomalyChapter 9 The Casimir EffectAppendix A Useful Mathematical Relations Appendix B The Wodzicki Residue Definitions and Conventions Bibliography Index

<<量子场的分析方面ANALYTIC>>

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