

Proceedings of Symposia in PURE MATHEMATICS

Volume 48

The Mathematical Heritage of Hermann Weyl

R. O. Wells, Jr.
Editor



American Mathematical Society
Providence, Rhode Island

Table of Contents

Preface	vii
On induced representations	
RAOUL BOTT	1
Differentiable structures on fractal-like sets, determined by intrinsic scaling functions on dual Cantor sets	
DENNIS SULLIVAN	15
Representation theory and arithmetic	
R. P. LANGLANDS	25
Noncommutative algebras and unitary representations	
DAVID A. VOGAN, JR.	35
The oscillator semigroup	
ROGER HOWE	61
<i>The Classical Groups</i> and invariants of binary forms	
ROGER HOWE	133
Characters, harmonic analysis, and an L^2 -Lefschetz formula	
JAMES ARTHUR	167
Perspectives on vertex operators and the Monster	
J. LEPOWSKY	181
Some problems in the quantization of gauge theories and string theories	
I. M. SINGER	199
Fully nonlinear elliptic equations	
L. NIRENBERG	217
Surfaces in conformal geometry	
ROBERT L. BRYANT	227
Algebraic cycles, Bott periodicity and the Chern characteristic map	
H. BLAINE LAWSON, JR. AND MARIE-LOUISE MICHELSON	241
Uniformization of geometric structures	
S.-T. YAU	265
Elliptic invariants for differential operators	
R. G. DOUGLAS	275
New invariants of 3- and 4-dimensional manifolds	
MICHAEL ATIYAH	285

Moduli spaces and homotopy theory	
CLIFFORD HENRY TAUBES	301
Fundamental asymmetry in physical laws	
R. PENROSE	317
Free fermions on an algebraic curve	
EDWARD WITTEN	329