

CONTENTS

Foreword	v
Preface	vii
Trace formula for quantum integrable systems, lattice-point problem, and small divisors	1
<i>Pavel Bleher</i>	
Theta-lifts of Maass waveforms	39
<i>Jens Bolte and Stefan Johansson</i>	
The transfer operator approach to Selberg's zeta function and modular and Maass wave forms for $PSL(2, \mathbb{Z})$	73
<i>Cheng-Hung Chang and Dieter H. Mayer</i>	
Chaos and deviation from uniform distribution: eigenfunction computation; applied modular arithmetic	143
<i>David V. Chudnovsky and Gregory V. Chudnovsky</i>	
Logarithmic Sobolev techniques for random walks on graphs	175
<i>Fan Chung</i>	
Eigenvalue statistics in quantum ideal gases	187
<i>Bruno Eckhardt</i>	
Multifractal spectrum and Laplace spectrum	201
<i>Isaac Efrat</i>	
Number theory and atomic densities	205
<i>Charles L. Fefferman and Luis A. Seco</i>	
Explicit formulas and oscillations	219
<i>Akio Fujii</i>	
Energy fluctuation analysis in integrable billiards in hyperbolic geometry	269
<i>Christian Grosche</i>	

On eigenfunctions of the Laplacian for Hecke triangle groups	291
<i>Dennis A. Hejhal</i>	
Eigenvalue spacings for regular graphs	317
<i>Dmitry Jakobson, Stephen D. Miller, Igor Rivin, and Zeév Rudnick</i>	
Classical limits of eigenfunctions for some completely integrable systems	329
<i>Dmitry Jakobson and Steve Zelditch</i>	
Does a quantum particle know the time ?	355
<i>Lev Kapitanski and Igor Rodnianski</i>	
Level spacings for Cayley graphs	373
<i>John D. Lafferty and Daniel N. Rockmore</i>	
Eigenvalues of Ramanujan graphs	387
<i>Wen-Ching Winnie Li</i>	
Theta sums, Eisenstein series, and the semiclassical dynamics of a precessing spin	405
<i>Jens Marklof</i>	
Random walks on generalized Euclidean graphs	451
<i>Perla Myers</i>	
Two proofs of Ihara's theorem	469
<i>Sam Northshield</i>	
Playing billiards with microwaves – quantum manifestations of classical chaos	479
<i>A. Richter</i>	
Characters of the symmetric groups: formulas, estimates and applications	525
<i>Yuval Roichman</i>	
Number theory and formal languages	547
<i>Jeffrey Shallit</i>	
Expander graphs and amenable quotients	571
<i>Yehuda Shalom</i>	

Ramanujan hypergraphs and Ramanujan geometries.....	583
<i>Patrick Solé</i>	
Constructing error-correcting codes from expander graphs.....	591
<i>Daniel A. Spielman</i>	
Multipath zeta functions of graphs.....	601
<i>Harold M. Stark</i>	
Eigenvalues of the Laplacian for Bianchi groups.....	617
<i>Gunther Steil</i>	
A survey of discrete trace formulas.....	643
<i>Audrey Terras</i>	
List of Participants.....	683
Program Schedule.....	685
Afterword.....	689