

## CONTENTS

Preface	v
Introductory Remarks <i>M. Berry</i>	vii
I. General Aspects	
Localization in Quantum Chaos <i>R. E. Prange</i>	2
Prom Classical to Quantum Chaos <i>G. M. Zaslavsky</i>	32
Quantum Chaos: Statistical Relaxation in Discrete Spectrum <i>B. V. Chirikov</i>	57
Instability of Quantum Motion of a Chaotic System <i>A. Peres</i>	73
KAM Behaviour in Quantum Dynamics <i>L. E. Reichl &amp; Li Haoming</i>	103
Bounds on the Instability of Quantum Dynamics <i>J. H. Jensen</i>	111
On the Sensitive Dependence of Quantum Mechanical Quantities <i>G. A. Luna-Acosta</i>	118
II. Eigenvalue and Eigenfunction Statistics	
Some Studies on a Classically Chaotic Quantum System <i>V. B. Sheorey</i>	132
Quasi Energy Eigenvalues and Eigenfunctions of Time-Dependent Periodic Hamiltonians <i>J. V. Josk</i>	143
Quantum Mechanical Eigenvector Statistics of Chaotic Systems <i>K. Zyczkowski</i>	153
Wave Chaos in Singular Quantum Systems <i>P. Seba</i>	169

On the Morphology of Avoided Crossings in the Spectrum of Irregular Quantum Systems	179
<i>Xiarhou Yang, J. Burgdörfer &amp; E. Eschenazi</i>	
Constrained GOE for Systems with Few Degrees of Freedom in the Intermediate Regime Between Chaos and Order	190
<i>C. E. Carneiro, M. S. Hussein &amp; M. P. Pato</i>	
Quantum Chaos in the Nuclear IBFM and IBFFM Models	205
<i>V. Lopac, S. Brant &amp; V. Paar</i>	
III. Semiclassical Theory	
Dynamical Basis for the GOE-GUE Transition upon the Breaking of Time-Reversal Invariance	222
<i>A. M. Ozorio de Almeida</i>	
Geometrical Aspects of Trace Formulas	241
<i>R. G. Littlejohn</i>	
Periodic Orbit Theory in Phase-Space Semiclassical Mechanics	253
<i>K. Takatsuka</i>	
Quantum Signature of a Periodic Orbit Family in a Hamiltonian System	267
<i>C. P. Malta &amp; A. M. Ozorio de Almeida</i>	
The Semiclassical Sum Rule and Riemann's Zeta-Function	280
<i>J. Keating</i>	
IV. Quantum Maps	
Quantum Maps	296
<i>N. L. Balazs</i>	
Stretching and Folding in the Configurational Quantum Cat Map	323
<i>St. Weigert</i>	
Separatrix States in the Kicked Quantum Rotor	333
<i>G. Radons &amp; R. E. Prange</i>	

## V. Irregular Scattering

Bound, Quasi-Bound, and Resonant Quantum State: Dynamical and Statistical Aspects	348
<i>P. Gaspard</i>	
Irregular Time Dependent Scattering of Electrons	371
<i>L. Wiesenfeld</i>	
VI. Quantum Chaos and Experiments	
Quantum Effects in Chaotic Josephson Junctions	382
<i>R. Graham &amp; J. Keymer</i>	
Dynamical Localization in the Microwave Interaction of Rydberg Atoms and the Influence of Noise and Bichromatic Fields	395
<i>A. Buchleitner, L. Sirko &amp; H. Walther</i>	
Rydberg Atoms in Crossed Electric and Magnetic Fields	409
<i>G. Raithel, M. Fauth &amp; H. Walther</i>	
Stochastic Autoionization from the Molecular Rydberg Quasicontinuum	423
<i>V. M. Akulin, V. Aquilanti, B. Brunetti &amp; F. Vecchiocattivi</i>	
Periodic Orbits and the Classical-Quantum Correspondence for Doubly-Excited States of Two-Electron Atoms	436
<i>J. -H. Kim &amp; G. S. Ezra</i>	
Semiclassical Eigenenergies in the Wake of Fast Ions in Solids	449
<i>J. Müller, J. Burgdörfer &amp; D. W. Noid</i>	
Concluding remarks	461
<i>M. C. Gutzwiller</i>	