

Table of Contents

Introduction	1
--------------------	---

Part I Theoretical Aspects of Quantum Irreversible Dynamics

Quantum Theory of Irreversibility: Open Systems and Continuum Mechanics	
<i>Geoffrey L. Sewell</i>	7

Selected Aspects of Markovian and Non-Markovian Quantum Master Equations	
<i>Karl Lendi</i>	31

Aspects of Open Quantum Dynamics	
<i>Antoine Royer</i>	47

Concepts and Methods in the Theory of Open Quantum Systems	
<i>Heinz-Peter Breuer, Francesco Petruccione</i>	65

Part II Open Quantum Systems and Applications

Decoherence-Free Subspaces and Subsystems	
<i>Daniel A. Lidar, K. Birgitta Whaley</i>	83

Controlled Quantum Open Systems	
<i>Robert Alicki</i>	121

Three Different Manifestations of the Quantum Zeno Effect	
<i>Paolo Facchi, Saverio Pascazio</i>	141

Progressive Decoherence and Total Environmental Disentanglement	
<i>Lajos Diósi</i>	157

Dynamics of Dissipative Quantum Systems: From Path Integrals to Master Equations	
<i>Joachim Ankerhold</i>	165

Quantum Entropies in a Classical Context	
<i>Mark Fannes, Bart Haegeman</i>	179

Part III Foundational Aspects of Irreversible Quantum Dynamics

Irreversibility and the Foundations of Quantum Mechanics	
<i>GianCarlo Ghirardi</i>	197

An Attempt at Relativistic Spontaneous Localization	
<i>Alberto Rimini</i>	221

The Quantum Jump Approach and Quantum Trajectories	
<i>Gerhard C. Hegerfeldt</i>	233

Part IV Asymmetric Time Evolution and Resonances

Irreversibility, Resonances and Rigged Hilbert Spaces	
<i>Ioannis E. Antoniou, Manolo Gadella</i>	245

Markovian Master Equations and Resonances in Quantum Open Systems	
<i>Andrzej Kossakowski</i>	303

A New Topology for an Axiom of Quantum Mechanics	
<i>Arno Bohm, Sujeewa Wickramasekara</i>	315

The Importance of Boundary Conditions in Quantum Mechanics	
<i>Rafael de la Madrid</i>	327

Time Asymmetric Quantum Mechanics and Relativistic Resonances	
<i>Piotr Kielanowski</i>	341

Irreversibility in the Framework of Hermitian and Non-Hermitian Treatments of Resonance States	
<i>Cleanthes A. Nicolaides</i>	357

Subject Index	371
----------------------------	-----