

# The Concept of Probability

# **Fundamental Theories of Physics**

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# The Concept of Probability

*Proceedings of the Delphi Conference,  
October 1987, Delphi, Greece*

*edited by*

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## PREFACE

This volume contains articles from invited speakers at a meeting which took place in Delphi, during the week of October 12-16, 1987. The theme of the meeting was "The concept of probability" and was organized by the "Group of Interdisciplinary Research" (Physics Department, University of Athens) and the Theoretical and Physical Chemistry Institute of the National Hellenic Research Foundation, Athens. (The Group of Interdisciplinary Research organized two previous Meetings, 1) on the Concept of physical reality (1982) and 2) on the question of determinism in Physics (1984)).

This small gathering, which was attended by scientists, mathematicians and philosophers from more than 22 countries, took place on the occasion of the 100th year from the birthday of E.Schrödinger.

As the father of wave-mechanics, Schrödinger thrused us into an era of physics where knowledge of the  $\Psi$ -function is considered, for most situations, as the ultimate aim and the ultimate truth. Yet, he, as well as another towering figure of 20th century physics, A.Einstein, never really felt comfortable with the interpretation of the meaning of  $\Psi$  and of the information that it contains. With Einstein playing the leading role a debate about concepts and interpretation started as soon as quantum mechanics was born. Central theme to this debate is the concept of probability, a concept which permeates- explicitly or implicitly- all science and even our decision making in everyday life.

The articles cover a broad spectrum of thought and results - mathematical, physical, epistemological, experimental, specific, general,- many of them outside the accepted norm. Regardless of their degree of validity, we hope that the mosaic of ideas, information, arguments and proposals which they contain, will prove to be a useful and timely addition to the existing literature on probability and its physical implications.

It is our pleasure to thank the speakers and all the participants for their contribution to a succesful and pleasant meeting. We are grateful for the financial support from the Greek Ministries of Culture and of Science and Technology, as well as from the National Hellenic Research Foundation and the International Center at Delphi.

Finally, we are thankful to Professor Thomas Brody for his invaluable help in the preparation of this volume as well as to Dr.G.Roussopoulos for his help in the organization of the conference.

Athens, September 1988

E.I.Bitsakis

C.A.Nicolaides

## CONTENTS

|  |     |
|--|-----|
| Preface  | v   |
| PART 1 FOLLOWING SCHRÖDINGER'S THOUGHTS  |     |
| Letter from Schrödinger to Einstein, 18 November 1950  | 3   |
| Schrödinger's thoughts on perfect knowledge<br>W. Duch   | 5   |
| Concerning Schrödinger's question: is Democritus of Planck the founder of quantum theory?<br>H-J. Treder | 15  |
| Schrödinger's reception of Greek atomism<br>R. Wahsner   | 21  |
| PART 2 PROBABILITY AND QUANTUM MECHANICS   |     |
| Probability theory in quantum mechanics<br>L. E. Ballentine  | 31  |
| Measurement and amplitudes<br>S. Gudder  | 43  |
| Representations of quantum logics and transition probability spaces<br>S. Pulmannova                     | 51  |
| Probability in quantum mechanics<br>G. T. Rüttimann  | 61  |
| PART 3 ASPECTS OF THE ARGUMENTS ON NONLOCALITY, BELL'S THEOREM AND EPR CORRELATIONS                      |     |
| Bell's theorem: a counterexample that agrees with the quantum formalism<br>T. D. Angelidis               | 71  |
| Quantum probability and quantum potential approach to quantum mechanics<br>A. Kyprianidis                | 91  |
| Time and enhancement: two possible local explanations for the EPR puzzle<br>S. Pascazio                  | 105 |

|  |     |
|--|-----|
| On Bell-type inequalities in quantum logics<br>J. Pykacz   | 115 |
| Physical meaning of the performed experiments concerning the EPR paradox<br>F. Selleri   | 121 |
| Comments on the “uncontrollable” character of non-locality<br>J. P. Vigiér   | 133 |
| <b>PART 4 REAL OR GEDANKEN EXPERIMENTS AND THEIR INTERPRETATION</b>  |     |
| Some basic differences between the Copenhagen and de Broglie interpretation of quantum mechanics leading to practical experiments<br>J. R. Croca | 143 |
| Search for new tests of the EPR paradox from elementary particle physics<br>D. Home  | 159 |
| On the role of consciousness in random physical processes<br>R. G. Jahn and B. J. Dunne  | 167 |
| Recent experiments in the foundations of quantum mechanics<br>A. G. Zajonc   | 179 |
| Numerical simulations of reduction of wavepackets<br>Y. Murayama and M. Namiki   | 189 |
| Description of experiments in physics: a dynamical approach<br>J. von Plato  | 199 |
| The physical quantities in the random data of neutron interferometry<br>J. Summhammer  | 207 |
| <b>PART 5 QUESTIONS ABOUT IRREVERSIBILITY AND STOCHASTICITY</b>  |     |
| Intrinsic irreversibility in classical and quantum mechanics<br>I. E. Antoniou and I. Prigogine  | 223 |
| A new challenge for statistical mechanics<br>W. T. Grandy, Jr.   | 235 |
| Quantum stochastic calculus as a unifying force in physics and probability<br>R. L. Hudson   | 243 |
| On the search of the time operator since Schrödinger<br>Z. Marić   | 255 |

|  |     |
|--|-----|
| Stochastic optics: a wave theory of light based on classical probabilities<br>T. W. Marshall and E. Santos                 | 271 |
| Quasiprobability distributions in quantum optics<br>G. J. Milburn and D. F. Walls  | 289 |
| Stochastic-dynamical approach to quantum mechanics<br>M. Namiki  | 301 |
| <b>PART 6 EPISTEMOLOGY, INTERPRETATION AND CONJECTURE</b>  |     |
| Relativity and probability, classical and quantal<br>O. Costa de Beauregard  | 315 |
| Classical and quantum probabilities<br>E. Bitsakis   | 335 |
| The ensemble interpretation of probability<br>T. A. Brody  | 353 |
| QM axiom representations with imaginary & transfinite numbers and exponentials<br>W. M. Honig                              | 371 |
| A change in paradigm: a realistic Copenhagen interpretation (realism without hidden variables)<br>J. Horváth and M. Zágoni | 389 |
| Pythia and Tyche: an eternal golden braid<br>L. M. Kirousis and P. Spirakis  | 395 |
| Quanta of action and probability<br>L. Kostro  | 405 |
| Comments on Popper's interpretations of probability<br>M. Rédei and P. Szegedi   | 417 |
| Van Fraassen's constructive empiricism and the concept of probability<br>G. Roussopoulos                                   | 427 |
| Unification of the concepts of quantum ensembles and potential possibilities<br>A. A. Tyapkin                              | 437 |
| Subject index  | 443 |