

Book Review

Interpretations and Foundations of Quantum Theory. Edited by Holger Neumann. B.I.-Wissenschaftsverlag, Zürich, 1981, 144 pp., 48.00 Sw. Frs. (soft cover).

These are the Proceedings of a conference held in Marburg, West Germany, during 28–30 May 1979. The aim of that conference was to stimulate the discussions between four different approaches to the foundations of quantum theory. The different schools are represented in this book by

- (1) Th. A. Cook, D. J. Foulis, and C. H. Randall (Empirical Logic);
- (2) P. Mittelstaedt and E. W. Stachow (Quantum Dialog Semantics);
- (3) G. Ludwig and H. Neumann (Statistical Approach);
- (4) C. Piron (Realistic Point of View).

Each approach maintains that the problem of understanding the Hilbert-space formulation of quantum mechanics is, at least in part, a matter of semantics. They profoundly differ, however, in what they consider as the concept which should (or ought to) be considered as primitive.

In these Proceedings the first and fourth schools present research papers, whereas the other two give a most helpful account of their point of views. However, the most interesting part is that concerning the relations between the different approaches. In particular we mention the contributions of G. T. Rüttimann on the interrelatedness of quantum logic and empirical logic to Ludwig's approach; that of S. P. Gudder on quantum logic, convexity, and algebraic approaches; and the one by G. Ludwig and H. Neumann on the connection between their approach and the others. The dialog between the four schools which met in Marburg is still active. See, for instance, the "FPR paper"¹ that brings together the Foulis–Randall

¹ D. Foulis, C. Piron, and C. Randall, "Realism, Operationalism, and Quantum Mechanics," *Found. Phys.* 13, 813 (1983).

empirical logic and Piron's realistic point of view. And others are in preparation. Let us hope that nobody will forget that different approaches are distinguished also by the way they open new research fields. (Who said, "God is not a linguist"?)

To summarize, although this book is not of general interest to physicists, it has the great advantage of embarking the reader on a confrontation trip between the most important trends in the foundations of quantum physics. As such this book will meet the interest of all those who believe that quantum mechanics has not yet told us all it has to tell.

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