

1. Record Nr.	UNINA9910741150203321
Autore	Pykacz Jarosaw
Titolo	Quantum Physics, Fuzzy Sets and Logic : Steps Towards a Many-Valued Interpretation of Quantum Mechanics / / by Jarosaw Pykacz
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-19384-8
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (71 p.)
Collana	SpringerBriefs in Physics, , 2191-5423
Disciplina	530.12
Soggetti	Quantum theory Logic, Symbolic and mathematical Mathematical physics Quantum Physics Mathematical Logic and Foundations Mathematical Logic and Formal Languages Mathematical Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- A brief survey of main interpretations of quantum mechanics -- A brief survey of many-valued logics -- Fuzzy sets and many-valued logics -- Many-valued logics in quantum mechanics -- Birkhoff-von Neumann quantum logic -- Birkhoff-von Neumann quantum logic as infinite-valued ukasiewicz logic -- Perspectives -- The many-valued interpretation of quantum mechanics.
Sommario/riassunto	This Brief presents steps towards elaborating a new interpretation of quantum mechanics based on a specific version of ukasiewicz infinite-valued logic. It begins with a short survey of main interpretations of quantum mechanics already proposed, as well as various models of many-valued logics and previous attempts to apply them for the description of quantum phenomena. The prospective many-valued interpretation of quantum mechanics is soundly based on a theorem concerning the isomorphic representation of Birkhoff-von Neumann quantum logic in the form of a special ukasiewicz infinite-valued logic endowed with partially defined conjunctions and disjunctions.

