1.	Record Nr.	UNISA996466736803316
	Autore	Beck Christian
	Titolo	Local quantum measurement and relativity / / Christian Beck
	Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] ©2021
	ISBN	3-030-67533-5
	Edizione	[1st ed. 2021.]
	Descrizione fisica	1 online resource (XI, 392 p. 47 illus.)
	Collana	Fundamental Theories of Physics ; ; Volume 201
	Disciplina	530.12
	Soggetti	Quantum theory Mathematical physics Physics
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di contenuto	Introduction and Outline -- Quantum Measurement -- Local Quantum Measurement I -- Local Quantum Measurement II -- An Active Notion of Localization -- Appendix.
	Sommario/riassunto	This book treats various aspects of the quantum theory of measurement, partially in a relativistic framework. Measurement(-like) processes in quantum theory are identified and analysed; and the quantum operator formalism is derived in full generality without postulating operators as observables. Consistency conditions are derived, expressing the requirement of Lorentz-frame independence of outcomes of spacelike separated measurements and implying the impossibility of using quantum nonlocality to send signals faster than light. Local commutativity is scrutinized. The localization problem of relativistic quantum theory is studied, including comprehensive derivation of the theorems of Hegerfeld, Malament and Reeh-Schlieder. Finally, the quantum formalism is derived from the dynamics of particles with definite positions in Bohmian mechanics.