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	Titolo	Statistical Benchmarks for Quantum Transport in Complex Systems [[electronic resource]] : From Characterisation to Design / / by Mattia Walschaers
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
	ISBN	3-319-93151-2
	Edizione	[1st ed. 2018.]
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	Soggetti	Quantum physics
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		Dynamical systems
		Quantum Physics
		Statistical Physics and Dynamical Systems
		Complex Systems
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	Nota di contenuto	Part I: General Introduction -- Perspective -- Essential Quantum Theory -- Complex Quantum Systems and Random Matrix Theory -- Part II: Single-particle Quantum Transport -- Efficient Transport in Closed Systems -- Scattering Approach to Efficient Transport -- Part III: Many-particle Quantum Transport -- Describing Many-particle Quantum Systems -- Many-Particle Interference -- Currents of Indistinguishable Particles -- Part IV: General Conclusions and Prospects -- Conclusions. .
	Sommario/riassunto	This book introduces a variety of statistical tools for characterising and designing the dynamical features of complex quantum systems. These tools are applied in the contexts of energy transfer in photosynthesis, and boson sampling. In dynamical quantum systems, complexity typically manifests itself via the interference of a rapidly growing number of paths that connect the initial and final states. The book presents the language of graphs and networks, providing a useful

framework to discuss such scenarios and explore the rich phenomenology of transport phenomena. As the complexity increases, deterministic approaches rapidly become intractable, which leaves statistics as a viable alternative.