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Nota di contenuto	Introduction -- Part I Wiring Diagrams -- Wiring Diagrams -- Generators and Relations -- Decomposition of Wiring Diagrams -- Finite Presentation -- Finite Presentation for Algebras over Wiring Diagrams -- Part II Undirected Wiring Diagrams -- Undirected Wiring Diagrams -- Generators and Relations -- Decomposition of Undirected Wiring Diagrams -- Finite Presentation for Undirected Wiring Diagrams -- Algebras of Undirected Wiring Diagrams -- Part III Maps Between Operads of Wiring Diagrams -- A Map from Normal to Undirected Wiring Diagrams -- A Map from Wiring Diagrams to Undirected Wiring Diagrams -- Problems.
Sommario/riassunto	Wiring diagrams form a kind of graphical language that describes operations or processes with multiple inputs and outputs, and shows how such operations are wired together to form a larger and more

complex operation. This monograph presents a comprehensive study of the combinatorial structure of the various operads of wiring diagrams, their algebras, and the relationships between these operads. The book proves finite presentation theorems for operads of wiring diagrams as well as their algebras. These theorems describe the operad in terms of just a few operadic generators and a small number of generating relations. The author further explores recent trends in the application of operad theory to wiring diagrams and related structures, including finite presentations for the propagator algebra, the algebra of discrete systems, the algebra of open dynamical systems, and the relational algebra. A partial verification of David Spivak's conjecture regarding the quotient-freeness of the relational algebra is also provided. In the final part, the author constructs operad maps between the various operads of wiring diagrams and identifies their images. Assuming only basic knowledge of algebra, combinatorics, and set theory, this book is aimed at advanced undergraduate and graduate students as well as researchers working in operad theory and its applications. Numerous illustrations, examples, and practice exercises are included, making this a self-contained volume suitable for self-study.