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Titolo	A Conceptual History of Space and Symmetry [[electronic resource]] : From Plato to the Superworld // by Pietro Giuseppe Fré
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ISBN	3-319-98023-8
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Descrizione fisica	1 online resource (323 pages)
Disciplina	516.1
Soggetti	Physics Quantum field theory String theory Gravitation History and Philosophical Foundations of Physics Quantum Field Theories, String Theory Mathematical Methods in Physics Classical and Quantum Gravitation, Relativity Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	The Episteme -- Symmetry and Mathematics -- How Group Theory came into Being -- From Crystals to Plato -- The Long Tale of Lie Groups -- Hermann Weyl and Representation Theory -- A Short History of Differential Geometry -- Geometry Becomes Complex -- Geometry Becomes Special -- Black Holes: The Physics of Geometry -- Modern Manifolds from Ancient Polyhedra -- Epilogue.
Sommario/riassunto	This book presents the author's personal historical perspective and conceptual analysis on symmetry and geometry. The author enlightens with modern views the historical process which led to the contemporary vision of space and symmetry that are used in theoretical physics and in particular in such abstract and advanced descriptions of the physical world as those provided by supergravity. The book is written intertwining storytelling and philosophical argumentation with some essential technical material. The author argues that symmetry and geometry are inextricably entangled and their current meaning is the

result of a long process of abstraction which was determined through history and can be understood within the analytic system of thought of western civilization that started with the Ancient Greeks. The evolution of geometry and symmetry theory in the last forty years has been deeply and constructively influenced by supersymmetry/supergravity and the allied constructions of strings and branes. Further advances in theoretical physics cannot be based simply on the Galilean method of interrogating nature and then formulating a testable theory to explain the observed phenomena. One ought to interrogate human thought, meaning frontier-line mathematics concerned with geometry and symmetry in order to find there the threads of so far unobserved correspondences, reinterpretations and renewed conceptions.
