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Nota di contenuto	An introduction to Algebraic Quantum Field Theory (Klaus Fredenhagen) -- Perturbative Construction of Models of Algebraic Quantum Field Theory (Klaus Fredenhagen, Katarzyna Rejzner) -- Models of free quantum field theories on curved backgrounds (Marco Benini and Claudio Dappiaggi) -- Algebraic quantum field theory in curved spacetimes (Christopher J. Fewster and Rainer Verch) -- Algebraic QFT in Curved Spacetime and quasifree Hadamard states: an introduction (Igor Khavkine and Valter Moretti) -- Cosmological applications of algebraic quantum field theory (Thomas-Paul Hack and Nicola Pinamonti) -- Quantum spacetime and algebraic quantum field theory (Dorothea Bahns, Sergio Doplicher, Gerardo Morsella and Gherardo Piacitelli) -- Algebraic conformal quantum field theory in perspective (Karl-Henning Rehren) -- Kitaev's quantum double model from a local quantum physics point of view (Pieter Naaijkens) -- Algebraic constructive quantum field theory: Integrable models and

deformation techniques (Gandalf Lechner) -- References -- Index.

Sommario/riassunto

This text focuses on the algebraic formulation of quantum field theory, from the introductory aspects to the applications to concrete problems of physical interest. The book is divided in thematic chapters covering both introductory and more advanced topics. These include the algebraic, perturbative approach to interacting quantum field theories, algebraic quantum field theory on curved spacetimes (from its structural aspects to the applications in cosmology and to the role of quantum spacetimes), algebraic conformal field theory, the Kitaev's quantum double model from the point of view of local quantum physics and constructive aspects in relation to integrable models and deformation techniques. The book is addressed to master and graduate students both in mathematics and in physics, who are interested in learning the structural aspects and the applications of algebraic quantum field theory.