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Nota di contenuto	Rise and Fall of Physical Theories -- The Evolution of Modern Physics from the Classical World -- Intuitiveness and Truth of Modern Physics -- The New Approach: Reduction and Elimination of Metaphysical Hypotheses -- Reconstruction of Special and General Relativity -- Historical Development Versus Rational Reconstruction -- Reconstruction of Special Relativity -- Reconstruction of Quantum Mechanics -- The Historical Development of Quantum Mechanics -- The Reduction of Ontological Hypotheses -- The Formal Languages of Classical Physics and of Quantum Physics -- Three Constants of Nature -- The Problem of Constants of Nature in Modern Physics -- The Meaning of the Constant “c” in Special Relativity -- Preliminary Remarks.- Metaphysics and Ontology -- Reconstruction of Special Relativity.- The Meaning of the Constant o -- One More Fundamental Question -- Planck’s Constant in the Light of Quantum Logic -- Interpretations of Modern Physics -- Introductory Remarks -- The Interpretations of Special Relativity -- Concluding Remarks -- Intuitiveness and Truth in Physical Theories.
Sommario/riassunto	Newton’s classical physics and its underlying ontology are loaded with several metaphysical hypotheses that cannot be justified by rational reasoning nor by experimental evidence. Furthermore, it is well known that some of these hypotheses are not contained in the great theories of Modern Physics, such as the theory of Special Relativity and Quantum Mechanics. This book shows that, on the basis of Newton’s classical physics and by rational reconstruction, the theory of Special

Relativity as well as Quantum Mechanics can be obtained by partly eliminating or attenuating the metaphysical hypotheses. Moreover, it is shown that these reconstructions do not require additional hypotheses or new experimental results. In the second edition the rational reconstructions are completed with respect to General Relativity and Cosmology. In addition, the statistics of quantum objects is elaborated in more detail with respect to the rational reconstruction of quantum mechanics. The new material completes the approach of the book as much as it is possible at the present state of knowledge. Presumably, the most important contribution that is added to the second edition refers to the problem of interpretation of the three great theories of Modern Physics. It is shown in detail that in the light of rational reconstructions even realistic interpretations of the three theories of Modern Physics are possible and can easily be achieved.