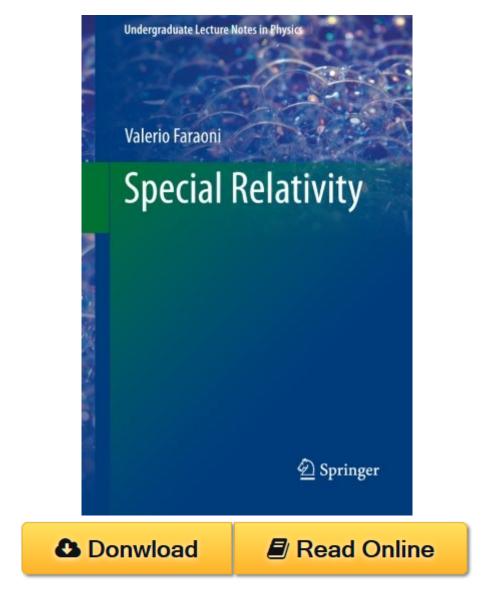
Special Relativity (Undergraduate Lecture Notes in Physics) PDF



Special Relativity (Undergraduate Lecture Notes in Physics) by Valerio Faraoni ISBN 3319011065

This book offers an essential bridge between college-level introductions and advanced graduate-level books on special relativity. It begins at an elementary level, presenting and discussing the basic concepts normally covered in college-level works, including the Lorentz transformation. Subsequent chapters introduce the four-dimensional worldview implied by the Lorentz transformations, mixing time and space coordinates, before continuing on to the formalism of tensors, a topic usually avoided in lower-level courses. The book's second half addresses a number of essential points, including the concept of causality; the equivalence between mass and energy, including applications; relativistic optics; and measurements and matter in Minkowski spacetime. The closing chapters focus on the energy-momentum tensor of a continuous

distribution of mass-energy and its covariant conservation; angular momentum; a discussion of the scalar field of perfect fluids and the Maxwell field; and general coordinates.

Every chapter is supplemented by a section with numerous exercises, allowing readers to practice the theory. These exercises constitute an essential part of the textbook, and the solutions to approximately half of them are provided in the appendix.

Special Relativity (Undergraduate Lecture Notes in Physics) Review

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