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Sommario/riassunto	During the last thirty years a great advancement in low energy physics, particularly interactions of atoms with the electromagnetic field, has been achieved and the development of electronics and laser techniques has allowed to implement a fine manipulation of atoms with photons. A wealth of important applications has sprung out from the ability of manipulating large samples of cold atoms. Among them, the improvement of atomic clocks and the creation of atomic gyroscopes and of atomic gravity meters, which is obviously of great interest for geodesists and geophysicists, particularly for potential applications in satellite geodesy. This book explains the fundamental concepts necessary to understand atom manipulation by photons, including the

principles of quantum mechanics. It is conceived as a road that leads the reader from classical physics (mechanics and electromagnetism, considered as a common scientific background of geodesists and geophysicists), to the basics of quantum mechanics in order to understand the dynamics of atoms falling in the gravity field, while interacting with suitably resonant laser beams. There are different types of measurements of gravity based on the manipulation of ultra-cold atoms; the book presents the principles of the instruments based on stimulated Raman transition, which can be easily worked out analytically. However, the concepts explained in the text can provide a good starting point to understand also the applications based on the so-called Bloch oscillations or on the Bose–Einstein condensation. .
