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Nota di contenuto	Contents; 1 Introduction; 2 Elementary radiative processes; 3 Laser velocity-selective excitation; 4 Optical orientation of atoms and nuclei; 5 Laser cooling of atoms; 6 Laser trapping of atoms; 7 Atom optics; 8 From laser-cooled and trapped atoms to atomic and molecular quantum gases; 9 Laser photoselective ionization of atoms; 10 Multiphoton ionization of molecules; 11 Photoselective laser control of molecules via molecular vibrations; 12 Coherent laser control of molecules; 13 Related topics: laser control of microparticles and free electrons; 14 Concluding comments; References; Index
Sommario/riassunto	This text treats laser light as a universal tool to control matter at the atomic and molecular level, one of the most exciting applications of lasers. Lasers can heat matter, cool atoms to ultra-low temperatures where they show quantum collective behaviour, and can act selectively on specific atoms and molecules for their detection and separation. - ; Rather different problems can be lumped together under the general term 'laser control of atoms and molecules'. They include the laser

selection of atomic and molecular velocities for the purpose of Doppler-free spectroscopy, laser control of the