1. Record Nr. UNINA9910985670903321

Autore	Oks Eugene
Titolo	Simple Atomic and Molecular Systems : New Results and Applications
Pubbl/distr/stampa	Bristol : , : Institute of Physics Publishing, , 2022 ©2021
ISBN	9780750340861 075034086X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (126 pages)
Collana	IOP Ebooks Series
Soggetti	Quantum theory Atomic theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	PRELIMS.pdf -- Author biography -- Eugene Oks -- CH001.pdf -- Chapter 1 Introduction -- References -- CH002.pdf -- Chapter 2 Two flavors of hydrogen atoms: a possible explanation of dark matter -- 2.1 The mystery and its resolution through a fundamental discovery -- 2.2 An alternative kind of hydrogen atom as a possible explanation of the latest puzzling observation of the 21 cm radio line from the early Universe -- 2.3 Two flavors of hydrogen atoms -- References -- CH003.pdf -- Chapter 3 Monopole contribution to the Stark width of hydrogen-like spectral lines in plasmas -- References -- CH004.pdf -- Chapter 4 How the finite mass of nuclei complicates analytical treatments of hydrogen atoms in external fields -- 4.1 Hydrogen atoms in a magnetic field -- 4.2 Hydrogen atoms in an electric field -- References -- CH005.pdf -- Chapter 5 Ionization of hydrogen atoms by a low-frequency laser field of arbitrary strength: no ‘local suppression’ -- References -- CH006.pdf -- Chapter 6 Generalized dynamics of a spherical harmonic oscillator -- References -- CH007.pdf -- Chapter 7 Selected applications for spectroscopic diagnostics of plasmas -- 7.1 Quasienergy states as a tool for diagnosing quasimonochromatic electric fields in plasmas -- 7.2 Measuring the laser field and the opacity of spectral lines in plasmas

Sommario/riassunto

Simple Atomic and Molecular Systems is devoted to simple atomic and molecular systems. It bridges the gap between the textbook descriptions of the systems and the state-of-the-art research, revealing counterintuitive phenomena involving these systems, their fundamental importance and practical applications.