1. Record Nr. UNINA9910813266703321 Autore Bloch S. C (Sylvan Charles) Titolo Introduction to classical and quantum harmonic oscillators //S.C. Bloch Pubbl/distr/stampa New York:,: Wiley,, [1997] ©1997 **ISBN** 1-118-71082-7 Edizione [2nd ed.] Descrizione fisica 1 online resource (653 p.) Disciplina 530.4/16 Soggetti Harmonic oscillators Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali "A Wiley-Interscience publication." Includes bibliographical references and index. Nota di bibliografia Cover: Half Title page: Title page: Copyright page: Dedication: Preface: Nota di contenuto Chapter 1: Classical Perspective; 1.1 Importance of the Harmonic Oscillator; 1.2 Newtonian Perspective; 1.3 Restoring Force; 1.4 Free Harmonic Oscillator: 1.5 LC Resonator: 1.6 Journey Through the Center of the Earth; 1.7 Low Satellite Orbit; 1.8 FREE-OSC, Free Oscillator Worksheet; 1.9 Phase Space, Part 1; 1.10 PHASE-SP, Phase Space Worksheet; 1.11 Callisto, Galileo, and French; 1.12 Searching for Planets; 1.13 Franklin, Priestly, Verne, and Burroughs; What's Next?; Chapter 2: Oscillator Energy; 2.1 Conservative Forces 2.2 Potential Energy 2.3 Kinetic Energy; 2.4 Conservation of Energy; 2.5 Phase Space, Part 2; 2.6 Energy Diagrams; 2.7 Equipartition of Energy; 2.8 General Potential Energy Function; 2.9 Perturbed Satellite Orbit; 2.10 High Power-Law Oscillators; 2.11 Adiabatic Invariance; 2.12 UNDAMPED, Free Oscillator Energy Worksheet; 2.13 Bungee Jumpers Beware; 2.14 Summary; Chapter 3: Damped Oscillators; 3.1 Velocity-

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Sommario/riassunto

From conch shells to lasers . harmonic oscillators, the timeless scientific phenomenon As intriguing to Galileo as they are to scientists today, harmonic oscillators have provided a simple and compelling paradigm for understanding the complexities that underlie some of nature's and mankind's most fascinating creations. From early string and wind instruments fashioned from bows and seashells to the intense precision of lasers, harmonic oscillators have existed in various forms, as objects of beauty and scientific use. And harmonic oscillation has endured as one of science's most fascinating con