

Κβαντική Οπτική και Lasers



Κωνσταντίνος Σιμασερίδης

ΑΘΗΝΑ 2015



METADATA

Title: Quantum Optics and Lasers

Other Titles: -

Language: Greek

ISBN: 978-960-603-073-4

Subject: NATURAL SCIENCES AND AGRICULTURAL SCIENCES

Keywords: Quantum Optics / Lasers / Two-level Atom / Three-level Atom / Electromagnetic Field Quantization

Bibliographic Reference: Simserides, C. (2015). Quantum Optics and Lasers [Undergraduate textbook]. Kallipos, Open Academic Editions. <http://dx.doi.org/10.57713/kallipos-800>

Abstract

The subject of this book is based on the compulsory course "Quantum Optics and Lasers" of the Department of "Solid State Physics" of the Faculty of Physics of the Natural Sciences School of the National and Kapodistrian University of Athens.

1. Introduction to the quantum nature of light.
2. Mechanisms of interaction of electromagnetic (EM) radiation and matter (two-level system).
- 3.

Semiclassical approach of the interaction of EM radiation and matter.

EM field: classically. Two-level system e.g. atom: quantum mechanically.

4. Quantum mechanical approach of the interaction of EM radiation and matter. EM field quantization.
5. Lasers.
6. Density matrix.
7. Some other issues for the properties and the operation of Lasers.

