

Κβαντική Οπτική και Lasers



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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.