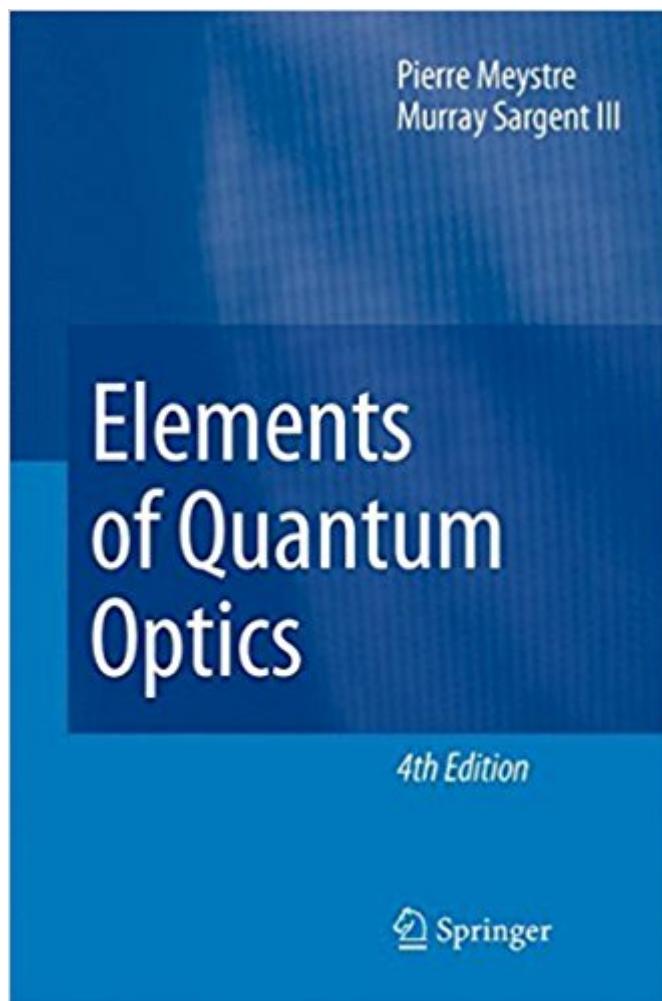


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Elements Of Quantum Optics



Synopsis

With a new chapter on quantum entanglement and quantum information, as well as added discussions of the quantum beam splitter, electromagnetically induced transparency, slow light and the input-output formalism, this fourth edition of the brilliant work on quantum optics has been much updated. It still gives a self-contained and broad coverage of the basic elements necessary to understand and carry out research in laser physics and quantum optics, including a review of basic quantum mechanics and pedagogical introductions to system-reservoir interactions and to second quantization. The text reveals the close connection between many seemingly unrelated topics, such as probe absorption, four-wave mixing, optical instabilities, resonance fluorescence and squeezing.

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FROM THE REVIEWS: JOURNAL OF MODERN OPTICS "The second edition has been revised and updated with new material on the effects of light pressure on atoms and on atomic optics. It is concise and my own research students find it to be a sympathetic and intelligible introduction. It is particularly good on supplying the core of a problem so that the new student can go to more advanced monographs with the requisite insight and confidence needed to tackle contemporary research topics. --This text refers to an out of print or unavailable edition of this title.

Elements of Quantum Optics gives a self-contained and broad coverage of the basic elements necessary to understand and carry out research in laser physics and quantum optics, including a

review of basic quantum mechanics and pedagogical introductions to system-reservoir interactions and to second quantization. The text reveals the close connection between many seemingly unrelated topics, such as probe absorption, four-wave mixing, optical instabilities, resonance fluorescence and squeezing. It also comprises discussions of cavity quantum electrodynamics and atom optics. The 4th edition includes a new chapter on quantum entanglement and quantum information, as well as added discussions of the quantum beam splitter, electromagnetically induced transparency, slow light, and the input-output formalism needed to understand many problems in quantum optics. It also provides an expanded treatment of the minimum-coupling Hamiltonian and a simple derivation of the Gross-Pitaevskii equation, an important gateway to research in ultracold atoms and molecules.

Firstly, I would like to say thanks to the authors, I am an experimentalist who was lack of the theoretical training, I read the book by self-studying. The style of this book inherit the book "Laser physics" (by Sargent, Scully, Lamb), which is also my favorite. Especially, in the new editing, Meystre update new topics in the field of modern quantum optics (such as cavity QED) which I think also very good for self-study. However, the new typesetting of the book makes me somehow uncomfortable since the spacing of the lines is too compact. I would appreciate the editing/typesetting of the second editing.

A must for Post-graduate students of applied electronics, electro-optics, and applied quantum mechanics.

Good as an introductory monograph, poor textbook. All the information is present, but it is not well organized for self learning or course development. Nevertheless it is worth reading if you are interested in this field. If you are new to the material, start elsewhere, then come look at this book.

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