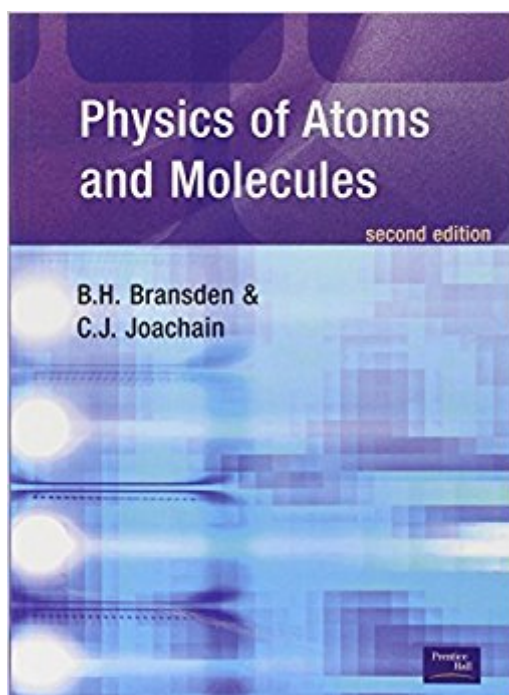


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Synopsis

New edition of a well-established second and third year textbook for Physics degree students, covering the physical structure and behaviour of atoms and molecules. The aim of this new edition is to provide a unified account of the subject within an undergraduate framework, taking the opportunity to make improvements based on the teaching experience of users of the first edition, and cover important new developments in the subject.

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The study of atomic and molecular physics is a key component of undergraduate courses in physics, because of its fundamental importance to the understanding of many aspects of modern physics. The aim of this new edition is to provide a unified account of the subject within an undergraduate framework, taking the opportunity to make improvements based on the teaching experience of users of the first edition, and cover important new developments in the subject. Key features of this new edition: Revised material on molecular structure and spectra Extended material on electronic and atomic collisions A new chapter describing applications based on the use of the maser and the laser, including laser spectroscopy, laser cooling and trapping of atoms, Bose-Einstein condensation, atom lasers and atomic systems in intense laser fields A new chapter describing other applications, including magnetic resonance, atom optics, atoms in cavities, ions in traps, atomic clocks and astrophysics Revised appendices include new material on molecules and updated tables of physical constants Solutions of selected problems B.H. Bransden is Emeritus

Professor of Theoretical Physics at the University of Durham. C.J. Joachain is Professor of Theoretical Physics at the University of Brussels. They are co-authors of Quantum Mechanics, also published by Prentice Hall.

This book contains a complete program on the atomic and molecular physics field, where the concepts are correctly explained, not leaving behind the formalism but making them easy to follow and understand for the student. I would like to leave a note on what I think is a very small number of examples, which sometimes would help to make the explanations and concepts more digestible. So far, I had used the first edition, and this 2nd edition, while more complete and reformatted, has not changed too much the good book it has always been. On another note, I simply can't understand how difficult it is to find/purchase this book anywhere else out of . Even in the publishing house I had troubles trying to purchase it! Eventually, was the answer (a bit more expensive but not a huge difference) and I have no regrets. It was delivered way before the expected date and that is a thumbs-up in my opinion. It is surprising because in every field of each science, there are always a few basic books that should be available -almost- everywhere, and in the field of atomic physics, this is definitely one.

This book is comprehensive, updated, and enjoys the ineffable insight and clarity of a real institution in the field: prof. C. J. Joachain. A definite plus is that the discussions are disseminated with a lot of references to the literature, so it can work as a good introduction to any of the manifold fields treated. It is true, though, that it is not extremely advanced, nor very general in its derivations, therefore if you are looking for THE "summa theologica", perhaps this is not what you are looking for.

This is an excellent textbook, with a very comprehensive compilation of standard and more modern concepts on atomic and molecular physics. We use this book for the course "Atomic and Molecular Physics" of the Degree of Physics, at the University of Seville, Spain. I congratulate the authors for this wonderful work!

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