DESCRIPTION

This introductory textbook covers fundamental quantum mechanics from an application perspective, considering optoelectronic devices, biological sensors and molecular imagers as well as solar cells and field effect transistors.

The book provides a brief review of classical and statistical mechanics and electromagnetism, and then turns to the quantum treatment of atoms, molecules, and chemical bonds.

Aiming at senior undergraduate and graduate students in nanotechnology related areas like physics, materials science, and engineering, the book could be used at schools that offer interdisciplinary but focused training for future workers in the semiconductor industry and for the increasing number of related nanotechnology firms, and even practicing people could use it when they need to learn related concepts.

The author is Professor Dae Mann Kim from the Korea Institute for Advanced Study who has been teaching Quantum Mechanics to engineering, material science and physics students for over 25 years in USA and Asia.

ABOUT THE AUTHOR

Dae Mann Kim is Professor of Computational Sciences, Korea Institute for Advanced Study. A physicist by training (PhD in physics, Yale University) but an engineer by profession, Kim started his teaching career at Rice University before moving to
Oregon Graduate Institute of Science and Technology and later to POSTECH (S. Korea). He has over 25 years experience teaching quantum mechanics to senior students from engineering, materials science and physics departments. Collaborating extensively with industrial labs over the years, Kim offered short courses to working engineers at Samsung and LG.

Professor Kim has served as the chair of the curriculum committee of the Korean Nano Technology Research Society. Kim has over 100 publications on the quantum theory of lasers, quantum electronics and micro and nano electronics. He is a Fellow of the Korean Academy of Science and Technology and has also served as Associate Editor of IEEE Transactions on Circuits and Systems Video Technology.