

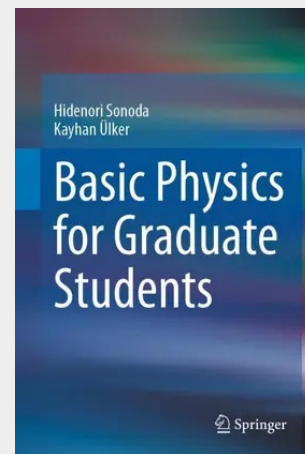
## Basic Physics for Graduate Students

This book provides a comprehensive review of essential undergraduate physics topics, tailored specifically for first-year graduate students. Covering mechanics, electromagnetism, thermal physics, and quantum mechanics, it offers a higher-level perspective that bridges the gap between undergraduate and graduate studies. With its particular focus on quantum mechanics, readers obtain a deeper understanding of this critical area.

The book has five chapters dealing with mechanics (two sections), electromagnetism (three sections), thermal physics (two sections), quantum mechanics (five sections), and advanced quantum mechanics (two sections). Key concepts explored in this book include the derivation of equations of motion from Lagrangian, the propagation of electromagnetic waves, free energies in thermodynamics, and the intricacies of quantum mechanics, such as angular momentum, perturbation theory, and scattering. The book's structured approach, complete with 150 exercises, encourages readers to engage actively with the material, reinforcing their knowledge and problem-solving skills. Supplementary notes provide additional depth, making this an indispensable resource for those preparing for comprehensive exams.

Ideal for first-year graduate students, this book is also a valuable reference for seasoned researchers and instructors seeking a quick refresher. Whether used as a textbook or a self-study guide, it equips readers with the foundational knowledge necessary for advanced physics courses and research. This English edition, translated, corrected, and augmented from the original Japanese, ensures accessibility to a global audience.

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