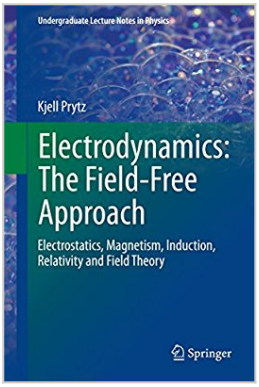

Electrodynamics: The Field-Free Approach: Electrostatics, Magnetism, Induction, Relativity and Field Theory (Undergraduate Lecture Notes in Physics)

By Kjell Prytz

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This book is intended as an undergraduate textbook in electrodynamics at basic or advanced level. The objective is to attain a general understanding of the electrodynamic theory and its basic experiments and phenomena in order to form a foundation for further studies in the engineering sciences as well as in modern quantum physics.

The outline of the book is obtained from the following principles:

- Base the theory on the concept of force and mutual interaction
- Connect the theory to experiments and observations accessible to the student
- Treat the electric, magnetic and inductive phenomena cohesively with respect to force, energy, dipoles and material
- Present electrodynamics using the same principles as in the preceding mechanics course
- Aim at explaining that theory of relativity is based on the magnetic effect
- Introduce field theory after the basic phenomena have been explored in terms of force

Although electrodynamics is described in this book from its 1st principles, prior knowledge of about one semester of university studies in mathematics and physics is required, including vector algebra, integral and differential calculus as well as a course in mechanics, treating Newton’s laws and the energy principle.

The target groups are physics and engineering students, as well as professionals

in the field, such as high school teachers and employees in the telecom industry. Chemistry and computer science students may also benefit from the book.

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Editorial Review

From the Back Cover

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About the Author

Kjell Prytz is a Senior Lecturer and Associate Professor of Physics, Högskolan Gävle (Gävle University College) since 1996. He has a background as a particle physicist and has worked at CERN, DESY and Celsius. His research focused on the smallest parts, called quarks, and their interactions.
Dr Prytz has been teaching on all possible levels, from the base year to the master level, in practically all fields of physics. In addition to pure physics courses, he has also been responsible for courses in electronics such as microwave and antenna theory.

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