1. Record Nr. UNINA9910254617503321 Autore Chaichian Masud Titolo Electrodynamics: An Intensive Course / / by Masud Chaichian, Ioan Merches, Daniel Radu, Anca Tureanu Pubbl/distr/stampa Berlin, Heidelberg:,: Springer Berlin Heidelberg:,: Imprint: Springer, , 2016 **ISBN** 3-642-17381-0 Edizione [1st ed. 2016.] 1 online resource (XVII, 669 p. 140 illus.) Descrizione fisica 537.6 Disciplina Soggetti **Optics** Electrodynamics Classical Electrodynamics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Electrostatic Field -- Field of Stationary Currents -- Electromagnetic Field -- Electromagnetic Waves -- Elements of Magnetofluid Dynamics -- Special Relativity -- Minkowski Space -- Relativistic Formulation of Electrodynamics in Minkowski Space -- General Theory of Relativity -- Appendix. Sommario/riassunto This book is devoted to the fundamentals of classical electrodynamics, one of the most beautiful and productive theories in physics. A general survey on the applicability of physical theories shows that only few theories can be compared to electrodynamics. Essentially, all electric and electronic devices used around the world are based on the theory of electromagnetism. It was Maxwell who created, for the first time, a unified description of the electric and magnetic phenomena in his electromagnetic field theory. Remarkably, Maxwell's theory contained in itself also the relativistic invariance of the special relativity, a fact which was discovered only a few decades later. The present book is an

> outcome of the authors' teaching experience over many years in different countries and for different students studying diverse fields of

physics. The book is intended for students at the level of undergraduate and graduate studies in physics, astronomy, engineering, applied mathematics and for researchers working in related subjects. We hope that the reader will not only acquire

knowledge, but will also grasp the beauty of theoretical physics. A set of about 130 solved and proposed problems shall help to attain this aim.