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Nota di contenuto	1. A Brief Tour of Electromagnetism -- 2. Field Energy and Momentum -- 3. A Frame Invariant Electromagnetism -- 4. The Field Tensors -- Index -- Appendix
Sommario/riassunto	This book is intended to engage the students in the elegance of electrodynamics and special relativity, whilst giving them the tools to begin graduate study. Here, from the basis of experiment, the authors first derive the Maxwell equations and special relativity. Introducing the mathematical framework of generalized tensors, the laws of mechanics, Lorentz force and the Maxwell equations are then cast in manifestly covariant form. This provides the basis for graduate study in field theory, high energy astrophysics, general relativity and quantum electrodynamics. As the title suggests, this book is “electrodynamics lite”. The journey through electrodynamics is kept as brief as possible, with minimal diversion into details, so that the elegance of the theory can be appreciated in a holistic way. It is written in an informal style and has few prerequisites; the derivation of the Maxwell equations and their consequences is dealt with in the first chapter. Chapter 2 is devoted to conservation equations in tensor formulation; here, Cartesian tensors are introduced. Special relativity and its consequences for electrodynamics are introduced in Chapter 3 and cast in four-vector form, and here, the authors introduce generalized tensors. Finally, in Chapter 4, Lorentz frame invariant electrodynamics is developed. Supplementary material and examples are provided by

the two sets of problems. The first is revision of undergraduate electromagnetism, to expand on the material in the first chapter. The second is more advanced corresponding to the remaining chapters, and its purpose is twofold: to expand on points that are important, but not essential, to derivation of manifestly covariant electrodynamics, and to provide examples of manipulation of cartesian and generalized tensors. As these problems introduce material not covered in the text, they are accompanied by full worked solutions. The philosophy here is to facilitate learning by problem solving, as well as by studying the text. Extensive appendices for vector relations, unit conversion and so forth are given with graduate study in mind