

1. Record Nr.	UNISA996418449503316
Autore	Klausen Kristján Óttar
Titolo	A Treatise on the Magnetic Vector Potential [[electronic resource] /] / by Kristján Óttar Klausen
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-52222-9
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (129 pages) : illustrations
Disciplina	535.14
Soggetti	Optics Electrodynamics Lasers Photonics Classical Electrodynamics Optics, Lasers, Photonics, Optical Devices
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Conceptual emergence -- Mathematical appearance -- Three dimensional solutions -- Applications -- Hydrodynamics analogy -- Superconductivity -- Future directions.
Sommario/riassunto	The connection between the electric and magnetic fields is fundamental to our understanding of light as electromagnetic waves. The magnetic vector potential lies at the heart of this relation. The idea emerged in the early days of research in electromagnetism but was dismissed for more than half a century until the formulation of quantum electrodynamics. The magnetic vector potential is a pivotal concept with ties to many aspects of physics and mathematics. This book unravels the nature of the magnetic vector potential, highlights its connection to quantum mechanics and superconductivity, and explores the analogy with hydrodynamics.