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Sommario/riassunto

Computational Electromagnetics and Model-Based Inversion: A Modern Paradigm for Eddy Current Nondestructive Evaluation describes the natural marriage of the computer to eddy-current NDE. Three distinct topics are emphasized in the book: (a) fundamental mathematical principles of volume-integral equations as a subset of computational electromagnetics, (b) mathematical algorithms applied to signal-processing and inverse scattering problems, and (c) applications of these two topics to problems in which real and model data are used. By showing how mathematics and the computer can solve problems more effectively than current analog practices, this book defines the modern technology of eddy-current NDE. This book will be useful to advanced students and practitioners in the fields of computational electromagnetics, electromagnetic inverse-scattering theory, nondestructive evaluation, materials evaluation and biomedical imaging. Users of eddy-current NDE technology in industries as varied as nuclear power, aerospace, materials characterization and biomedical imaging will find this book to be a valuable resource as well.