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Disciplina	530
Soggetti	Electronic circuits Materials science Physical measurements Measurement Magnetism Magnetic materials Mechanics Mechanics, Applied Electronic Circuits and Devices Characterization and Evaluation of Materials Measurement Science and Instrumentation Magnetism, Magnetic Materials Solid Mechanics
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Note generali	Description based upon print version of record.
Nota di contenuto	Electromagnetic ultrasonic guided wave testing -- Outline -- Factors influencing the performance of EMATs -- EMATs for pipeline axial guided wave generation -- The dispersion characteristic of the guided waves -- The electromagnetic ultrasonic guided wave testing technology -- Pulsed eddy current testing -- Basic principle of electromagnetism -- The coil type probe for the pulsed eddy current testing -- The electronic circuit used in the pulsed eddy current testing -- The remote field eddy current testing -- The mathematical model of the remote field eddy current testing -- The finite element simulation and modeling of the remote field eddy current in the pipeline -- The

2D finite element simulation of the remote field eddy current in the pipeline -- The 3D finite element simulation of the remote field eddy current in the pipeline -- Low frequency eddy current testing -- The low frequency eddy current-based testing system of the pipeline deformation -- The metal magnetic memory testing -- The principle of testing -- The relation between the magnetic field of the earth and the magnetic memory of the ferromagnetic materials -- Measuring the distribution of the stress using the metal magnetic memory -- The magnetic flux leakage testing -- The principle of the MFL testing -- The factors influencing the MFL testing -- The defect size quantification methods in the MFL testing -- The pulsed MFL testing -- References.

Sommario/riassunto

This book introduces novel developments in the field of electromagnetic non-destructive testing and evaluation (NDT/E). The topics include electromagnetic ultrasonic guided wave testing, pulsed eddy current testing, remote field eddy current testing, low frequency eddy current testing, metal magnetic memory testing, and magnetic flux leakage testing. Considering the increasing concern about the safety maintenance of critical structures in various industries and everyday life, these topics presented here will be of particular interest to the readers in the NDT/E field. This book covers both theoretical researches and the engineering applications of the electromagnetic NDT technology. It could serve as a valuable reference for college students and relevant NDT technicians. It is also a useful material for qualification training and higher learning for nondestructive testing professionals.