Special Issue

Advanced Application of Eddy Current Sensors, Devices and Systems

Message from the Guest Editors

As one of the most used EM NDT techniques for the evaluation of metals, ECT plays an important role in numerous industries, particularly in the rail, aerospace, petrochemical, nuclear, and transportation sectors. Applications of ECT include the detection of surface or near-surface defects, measurement of thickness, electrical conductivity, and magnetic permeability of austenitic and ferromagnetic metals. Conductive samples affect the electromagnetic field generated by coils with alternating induced currents. Referring to eddy current effects, materials with different properties (for example, magnetic permeability, electrical conductivity, thickness) result in different secondary electromagnetic fields and induced voltages on coils. Based on this fact, various methods have been developed to interrogate conductive samples using eddy current sensors. The SI welcomes contributions from but is not limited to the following fields: applied eddy current sensors; eddy current non-destructive testing; pulsed eddy current testing (PECT), multi-frequency eddy current testing (MECT), real-time defect detection, evaluation of metallurgical property, novel ECT probe design, etc.

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Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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