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IEEE Sensors Journal Special issue on

Advanced Electro-magnetic Sensing Technologies for Complex Engineering Structure Health Monitoring

Health monitoring for complex engineering structures, from large-scale complex building structures, industrial process monitoring to small-scale complex circuit structures, has broad market prospects and demands. Accurate and advanced sensing technology is of paramount significance for in-depth understanding of complicated phenomena, promotion of structure improvement and fault diagnosis and prognosis. In the past decades, electro-magnetic sensing technology has provided indispensable and effective pathways for properties evaluation of materials and structures, from appearance dimension, internal composition to microstructures, residual stress and defects, etc. Recently, the sensing systems have been developing towards having in-situ sensing or imaging ability, higher accuracy (reliability), faster detection speed (online ability), and lower cost. This has led to the emergence of a large amount of structural sensing data and the possibility of establishing dynamic modeling or even digital twins of multi-scale structures.

The scope of this Special Issue will be the examination of recent novel sensor structures, advances of sensing system (such as portable, low energy consumption, and high performance systems), and efficient data processing algorithms for health monitoring of complex, multi-scale structures.. The topics of interest include, but are not limited to:

- Multifunctional integrated Electro-magnetic sensor
- Sensor array and multi-modal sensing principles
- Portable and high-performance sensor and sensing devices
- Smart sensing networks
- Artificial intelligence based signal processing algorithms
- Accurate modeling using multi-field coupling
- Structural damage assessment based on sensory data
- Detection technology based on augmented reality
- Automatic detection devices and equipment
- Industrial process monitoring
- Electrical & magnetic sensing method for quality evaluation of concrete structures
- Digital twin in SHM

Solicited and invited papers shall undergo the standard IEEE Sensors Journal peer review process. All manuscripts must be submitted on-line, via the *IEEE Manuscript Central*TM, see <http://mc.manuscriptcentral.com/sensors>. When submitting, please indicate in the “Manuscript Type” roll down menu, and also by e-mail to Leigh Ann Testa, testa.l@ieee.org, that the paper is intended for the “<title>” Special Issue. Authors are particularly encouraged to **suggest names of potential reviewers** for their manuscripts in the space provided for these recommendations in *Manuscript Central*. For manuscript preparation and submission, please follow the guidelines in the *Information for Authors* at the IEEE Sensors Journal web page, <http://www.ieee-sensors.org/journals>

Deadlines:

- Manuscript Submission: January 31, 2022
- Notification of Acceptance : April 30, 2022
- Final Manuscript published in IEEExplore: June 1, 2022

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