*Special Session Title:*

# Intelligent Non-destructive Testing and Evaluation for Structures

## Organizers


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## Abstract

The more complex the structure and the larger its size, the higher the manufacturing cost, the longer the manufacturing cycle, and the higher the requirements for manufacturing quality. In many industrial and application fields, complexity, large-scale, high performance, multi-functionality, long service life, and low cost have become important development directions for structural optimization design, high-efficient and quality manufacturing and safe service in recent years. By developing advanced intelligent non-destructive testing and evaluation (iNDT&E) methods, technologies, and equipment, information reflecting the performance, function, manufacturing quality, health, and service safety of the structure can be obtained. The results of deep mining and intelligent analysis of detection data using artificial intelligence models can be used for structural design optimization, manufacturing process improvement, and health detection and service safety monitoring of structures. The development of advanced 3D visualization detection techniques and equipment can achieve accurate detection and evaluation of high-value complex and large-scale structures. With the development of artificial intelligence technology, many iNDT&E methods, models, and instruments with machine learning and deep learning characteristics have been continuously applied in practice. This topic is aimed at research and development, manufacturing and service of structures and high-value products, attracting researchers and scholars engaged in iNDT&E and related fields to introduce relevant research results, share their own research and application results, and jointly promote the development of iNDT&E techniques. The topics of interest in this session include but not limited to:

Contents of interest include, but are not limited to, the following topics:

- Intelligent characterization, detection and evaluation methods.
- Intelligent detection and evaluation model and simulation.
- Intelligent detection and evaluation algorithm and test verification.
- 3D visual inspection and intelligent evaluation techniques.
- Multi-method integration of intelligent detection and evaluation techniques.
- Intelligent inspection and evaluation techniques in structural design optimization, intelligent manufacturing and service safety applications.
- Artificial intelligence for iNDT&E.
- Structure design and iNDT&E.
- Intelligent manufacturing and iNDT&E.
- Structural health inspection.
- Life assessment using iNDT&E.