Special Session: Reliability modeling and maintenance Optimization for complex systems

Motivation: The high integration of modern industrial systems proposes new challenges in performance assessment and maintenance optimization. Those systems in structure consist of multiple components subject to time-dependent varying working conditions which leads to complexity and dependency in reliability analysis. System maintenance has considerable merits in maintaining system function highly relying on the development of modern technologies, e.g., system monitoring, diagnostic and prognostic, and decision-making, etc.

This special session aims to attract researchers in seeking solutions regarding the reliability, availability, maintainability, and safety (RAMS) of complex systems.

Objective: The objective of this special session is to bring the latest innovative ideas, cutting-edge research results, and applications for complex system performance assessment and maintenance optimization. Applications in practical industrial cases will also be included.

Topics include but are not limited to:

Reliability modeling and analysis of complex systems;
Reliability-based design optimization (RBDO) methods;
Risk analysis and reliability assessment for large-scale complex systems;
Predictive maintenance scheme and decision-making optimization.
Statistical methods for degradation modeling
Physical-based and/or data-driven prognostics and health management (PHM) techniques
Machine learning techniques and applications in reliability engineering
Uncertainty quantification and analysis for safety-critical systems
Bayesian methods for reliability analysis

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