Special Issue on
Fault Identification, Diagnosis, and Prognostics Based on Complex Signal Analysis

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CALL FOR PAPERS

Prognostics and health management (PHM) has become one of the most popular research topics, especially for complex electromechanical systems such as rotary machinery, control system, and power system in the fields of aerospace, manufacturing, sustainable energy, infrastructure, and transportation. To maximize the operational availability, reduce potential risks, and save the cost of life cycle, a PHM system is expected to predict, diagnose, monitor, and manage the state or condition of engineering assets using various advanced sensors (accelerometers, piezoelectric sensors, etc.). The monitored signals can be conveniently acquired and contain abundant signature information that reflects the trend of the potential failure and performance degradation of the investigated systems.

The overarching intention of this special issue is to publish new progress dealing mainly (but not exclusively) with up-to-date solutions of signal processing, autonomic feature extraction, health assessment and diagnosis, and performance degradation prediction. Emphasis will be focused on various leading-edge theories and methodologies, such as chaos and fractal, genetic algorithms, cellular automata, big data analysis, and evolutionary game theory, which are expected to address the existing challenges for a real-world PHM system. If deemed relevant, integration techniques of diagnosis and prognostics could also be presented.

This special issue aims to aggregate the latest research efforts contributing to theoretical, methodological, and technological advances in detecting anomalies, forecasting potential degradation, and classifying faults by monitoring and analyzing signals collected from different electromechanical systems operating in complex environments.

Prospective authors are invited to submit high-quality original contributions and reviews for this special issue, including novel theories, methodologies, and algorithms with necessary case studies in the field of PHM.

Potential topics include but are not limited to the following:

- Advanced diagnosis and health assessment techniques for electromechanical systems
- Advanced prognostics for remaining useful life and performance degradation
- Structural health monitoring in the field of aerospace
- Integration techniques of diagnosis and prognostics in the fields of aerospace, shipbuilding, manufacturing, infrastructure, and transportation
- Multidimensional clustering and management of monitoring data for PHM applications
- PHM methods for software aging and rejuvenation

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/complexity/fid/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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