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European Safety and Reliability Conference

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CALL FOR ABSTRACTS

Special session on
Adaptive Optimization of Maintenance
Strategies for Complex Systems

Description

In the specific context of preventive maintenance strategies, the difficulty is to make the decision to initiate a maintenance sufficiently early while having good confidence in this decision. Making a decision too early may require replanning the strategy and therefore lead to additional costs linked to the reorganization of maintenance teams and of system operations. Conversely, taking a decision too late may result in a high level of confidence but entails additional costs too. It is therefore important to make a decision at the optimal time according to logistical and economic constraints while managing the uncertainty involved.

Motivation

In this context, the most important challenge of industrial companies is to set up a methodology to optimize the maintenance strategy for a complex system, as well as its declination into maintenance policies for the various items (design tree seen from a point of view “maintenance” breakdown) and optimization in the type and quantity of the various resources (spare parts, personnel, test and support equipment, repair items, infrastructure).

It is expected that this session will cover the optimization of maintenance plans for complex industrial systems. Hence, a major focus of this session concerns the different optimization approaches based on heuristics, meta-heuristics and even exact methods for small problems size. Moreover, the session welcomes submissions and proposals dealing with new open research challenges in the context of predictive maintenance and maintenance grouping strategies optimization.

Objective

To summarize, the objective of this special session consists in addressing different scientific and technological challenges to optimize the maintenance strategies for complex industrial systems. It is also an important opportunity to share the existing state of the art on adaptive maintenance grouping strategies optimization approaches and benchmarking them.

Addressed topics (but not limited):

- Maintenance optimization
- Dynamic production and maintenance scheduling
- Simulation based optimization
- Predictive maintenance and optimization
- Digital twin for maintenance and optimization

Organizer

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