



## Advances in reliability and maintenance modelling of sustainable manufacturing-distribution systems

Manufacturing systems represent a significant portion of industrial capital. For the design, operation and management of such systems, integrated approaches have proven to be effective and have hence attracted researchers from reliability, availability, and maintainability (RAMS), and operational research (OR) communities. Manufacturing-distributions systems must be cost-effective, time-efficient, resilient, agile, and sustainable. Sustainability has become a crucial performance indicator and customer attraction feature. Sustainability concerns relate to the material and energy consumption and greenhouse gas emissions from raw material extraction to production processes and distribution. Several recent studies demonstrated the benefit of making joint decision on production and maintenance planning problems for manufacturing-distributions systems. In addition to maintenance and production activities, there are pressing needs to integrate quality control, ethical sourcing and decarbonization considerations into the decision processes. Furthermore, recent innovative developments in large-scale, robust optimization, machine learning and Industrial internet of things must be considered.

This session aims to bring together a group of researchers who have investigated these topics and will have them share their research work with the community with the goal of fostering future research on these key issues. The session also aims to establish a bridge between scientific communities sharing research issues in reliability & maintenance, operational research, remanufacturing, large-scale optimization, supply chain and logistics management, etc.

Original research papers, methodological papers, case studies, reviews and short communications on the theme of this special session are welcomed. Topics may include but are not limited to:

- Machine learning modelling for mission-oriented systems
- Deep-learning modelling for diagnostics and prognostics
- Integration of Industry 4.0/5.0 concepts with RAMS for multicomponent systems
- Design for sustainable manufacturing-distribution systems
- Failure data analysis and condition assessment models for remanufacturing
- Maintenance and production outsourcing models for manufacturing systems
- Integrated analysis of quality, production and maintenance for manufacturing systems
- Reliability assessment of manufacturing and remanufacturing systems
- Robust optimization of joint maintenance and production planning
- Optimal maintenance strategies for sustainable systems
- Warranty and leasing models for new or reconditioned manufacturing systems
- Safety models for manufacturing and remanufacturing systems
- Sensor-data and data-driven maintenance and reliability optimization
- Case studies on Wind farms, Electrified mobility, unmanned aerial vehicles, Autonomous Delivery Systems, etc.

**Paper submission:** proceed as an invited paper and indicate the invited session identification code XXXYYYYZ.

Guidelines for the preparation of manuscripts are on the conference website at: <https://hub.imt-atlantique.fr/mim2022/>

**Submission Deadline: December 25, 2021 - Authors Notification: February 15, 2022 - Final paper submission deadline: March 15, 2022**

**Invited session chairs and contact information:** (If you experience any difficulties, please contact one of the organizers)

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