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30th IEEE International Conference on Emerging Technologies and Factory Automation

Call for Papers
SS10 – Zero Defects Manufacturing in the Industry 4.0 Era
AI-Driven Quality, Automation, and Cyber-Physical Systems

Organized and Chaired by

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- **FOCUS**. Zero Defects Manufacturing (ZDM) in the Industry 4.0 era leverages Artificial Intelligence (AI), Internet of Things (IoT), automation, and Cyber-Physical Systems (CPS) to enhance quality control and eliminate defects in production. Key enablers include the Reference Architecture Model for Industry 4.0 (RAMI 4.0) and Asset Administration Shell (AAS) for seamless interoperability, along with non-destructive inspection (NDI) techniques and AI-driven quality assessment. Automation technologies and Digital Twin solutions enable real-time process adaptation and waste reduction, ensuring efficiency and precision in smart manufacturing environments. This session explores cutting-edge strategies and technologies driving the next generation of defect-free, data-driven, and intelligent production systems.

- **TOPICS**
  - Interoperability & Standards for ZDM: RAMI 4.0 and AAS implementation for seamless quality management
  - Digital Twins & Cyber-Physical Systems: Real-time process monitoring, adaptation, automation and defect prevention
  - Non-Destructive Inspection (NDI) Techniques: Advanced sensing and imaging for in-line defect detection
  - AI & Data-Driven Quality Assessment: Machine learning and predictive analytics for defect prediction and prevention
  - Sustainable Manufacturing & Waste Reduction: The role of ZDM in resource efficiency and circular economy

- **AIM.** This Special Session aims to bring together professionals from industry and academia to share cutting-edge concepts, recent developments, research results, and practical achievements in Zero Defects Manufacturing in the Industry, taking advantage of Artificial Intelligence, the Internet of Things, automation, and Cyber-Physical Systems to enhance quality, eliminate defects and contribute to first time right production.

- **CONFERENCE FORMAT**. The conference will comprise multi-track sessions for regular papers, to present significant and novel research results with a prospect for a tangible impact on the research area and potential implementations, as well as work-in-progress (WiP) and industry practice sessions.

- **AUTHOR'S SCHEDULE (2025)**

❖Regular and special sessions papers
Submission deadline ..... **April 18**
Acceptance notification ..... May 23
Deadline for final manuscripts ..... July 4

❖Work-in-progress/Industry practice papers
Submission deadline ..... **May 30**
Acceptance notification ..... June 20
Deadline for final manuscripts ..... July 4