

Call for Papers

SS13 - Safety for Heterogeneous Agile Production Systems

Organized and Co-Chaired by (sorted by last name)

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❖ FOCUS

In various branches of industry, the need for flexible production options is becoming increasingly apparent. This trend is met with higher automation, digitalization, and modularization strategies of production systems to reduce time to market and create easily adaptable systems. However, acceleration and flexibility must not be at the expense of plant safety.

Flexible systems are accompanied by new requirements for (1) risk analysis and evaluation, (2) implementation of safety systems, and (3) regulatory approval of plant safety. The approaches from conventional plants are reaching their limits when transitioning towards lot size one and approving them individually becomes impossible for every single plant setup. The possible compositions of systems are hardly foreseeable, and the combinations of system configurations and parameter settings explode. Systems such as autonomous mobile robots (AMRs), collaborative robots (cobots), robotic manipulators, or drones can implement various tasks and dynamically form a system of systems for achieving a common mission. Moreover, the trend to Software-Defined Manufacturing (SDM), where a software update can drastically change the entire production process, requires a completely new approach to risk analysis that should be performed in automated way before each software update. Assuring the safety of such system of systems is challenging due to their dynamic nature and their unstable system boundaries.

❖ TOPICS

- ❖ Cross-industry application of agile safety concepts: e.g. discrete industry, process industry
- ❖ New technologies and strategies for plant safety
- ❖ New safety approaches for system of systems in smart manufacturing, autonomous warehouses and modular automation
- ❖ Safety assurance, safety cases, and upcoming safety regulation in smart manufacturing
- ❖ Modeling and risk assessment of software-defined manufacturing systems
- ❖ Symbiotic safety and safety of sociotechnical systems
- ❖ Validation of concepts at demonstration plants
- ❖ Subject areas according to IEC 61508 and derived standards such as Hazard and Risk Analysis and Technical Plant Safety.

❖ AIM

With this Special Session, we want to address the need to reconcile safety strategies with the goals of flexible production and material handling. For this, new solutions and approaches must be found in the areas of the three clusters mentioned (1-3).

❖ 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 (2022)

❖ Regular and special sessions papers

Submission deadline April 1
Acceptance notification May 6
Deadline for final manuscripts June 17

❖ Work-in-progress/Industry practice papers

Submission deadline May 13
Acceptance notification June 10
Deadline for final manuscripts June 17