



Reconfigurable Manufacturing Systems

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Short presentation:

To cope with several types of change, e.g., product variety due to mass customization, demand fluctuation, and production variability, manufacturing systems must continually adapt their production capacity and functionality. In the last decade, Reconfigurable Manufacturing Systems (RMS) have been proposed to deal with mass-customization problems and volatile markets. RMS are based on the modularization of production systems to increase their flexibility/agility, while improving their ramp-up time, their responsiveness, and their resilience to change. RMS make it possible, for example, to adapt the number and arrangement of resources (machines, robots, operators, internal transport logistics, etc.) according to variations in demand or the availability / reliability of equipment. These manufacturing systems can benefit from the new methodological and technological developments in the field of Industry 4.0. Thus, these new developments give birth to new forms of cooperation / collaboration between human operators and robots (cobotics), or between robots (stationary or mobile) and machines. If these new technologies are profitable to the RMS development, they induce equally new issues (e.g., need of new safety approaches for reconfiguration of robotized units, need of new human-resource-product interaction protocols and mechanisms, etc.).

In accordance with the topics of the SOHOMA workshop, this session aims to present impacts of new technologies on (but not limited to):

- Modelling and simulation of RMS,
- Facility layout design and reconfiguration for RMS,
- Production planning and scheduling in RMS,
- Control approaches allowing easy reconfiguration of RMS units,
- Human and Machine cooperation in RMS including safety issues,
- Internal logistics in RMS,
- Impacts of system automation (IoT, edge, fog, cloud computing, Cyber Physical Systems, etc.) on the RMS development,
- Industrial or didactic prototypes development of RMS.

Keywords: Reconfigurable manufacturing system, scheduling, reconfiguration, safety, control, layout, Cyber physical Systems

Important dates:

- Full paper submission: 15 July 2021
- Notification of acceptance: 15 September 2021
- Final, camera-ready paper submission: 15 October 2021



- Early registration and fee payment: 1 November 2021
- Workshop: 18-19 November 2021