Session title: **Cloud and Computing-oriented Manufacturing - CCOM**

Organisers:

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Short presentation:

The large scale emergence in the last decade of various cloud solutions, ranging from Software-as-a-Service based solutions for business process management and implementation to very sophisticate private cloud solutions capable of high performance computing (HPC) and efficient virtualization, constitute the building blocks for engineering the next generation of flexible enterprise systems that can respond to environmental changes with great agility. These new technologies are adopted by manufacturing enterprises to advance in a new era of mass customization where flexibility, scalability and agility are the differentiating factors.

Cloud manufacturing (CMfg) was introduced as a service-oriented networked manufacturing model, focusing on studying the opportunities for networked manufacturing (NM) opened by cloud computing platforms. The cloud-based service delivery model for the manufacturing realm includes product design, batch planning, product scheduling, real time manufacturing control, testing, management, and other stages of a product life cycle.

In this context, paper are sought which describe MES virtualization as an intermediate layer in the manufacturing stack. Virtualization using private clouds brings many advantages on the manufacturing system reliability by allowing full system snapshots and backups and quick recovery in case of failures, as well as providing built-in redundancy. MES workload virtualization allows a separation or decoupling between the physical resources and the controlling information system.

There is also a certain orientation of this special session towards complexity. Of interest is handling Big Data for the contextual enterprise: to continue achieving high levels of productivity growth and agility, manufacturers will need to leverage large datasets to drive efficiency across the manufacturing value chain and to extend products with new services. Another challenge includes coping with the heterogeneous nature of industrial systems and their real time interactive nature in combination with competitive pressures (e.g. off-line plans are known to become invalid within minutes after arriving on the factory floor).

The papers submitted for this session should address the following topics:

- Information system integration and MIF
- Computing oriented manufacturing systems: theory, architectures, applications
- Ontology-based manufacturing systems
- Cloud manufacturing
- MES virtualization using private cloud systems
- Big Data and the contextual enterprise
- Ubiquitous / pervasive computing in manufacturing
- Cyber physical systems in networked manufacturing

Keywords:

Complex event processing, manufacturing ontology, MES virtualization, Cloud manufacturing, Computer-oriented manufacturing, Big Data, Cyber-physical systems

Important dates:

- Special Session Proposal: June 30, 2015
- Full Paper Submission: August 31, 2015
- Notification of Acceptance: September 22, 2015
- Final Paper Submission: October 25, 2015