



## IEEE Robotics & Automation Society Technical Committee on Semiconductor Manufacturing Automation

<http://xs3d.kaist.edu/TC-SMA>

### Co-Chairs:

Director Thomas Wen-Yao Chen (TSMC), VP Mike Tao Zhang (Tianwei New Energy Holdings), Prof. James Morrison (KAIST)

**Join Us!** Anyone who is interested in joining this technical committee can send a message to [james.morrison@kaist.edu](mailto:james.morrison@kaist.edu). All comments, suggestions, and contributions to the technical committee activities are highly welcome.

### Objectives

Semiconductor manufacturing is a rapidly growing cornerstone industry. But it is also a very harsh environment due to complicated production processes, sophisticated equipment, and fluctuating demand. With the emerging highly automated wafer fabrication facilities (fabs), there is a compelling trend to promote the interdisciplinary R&D field integrating automation with advanced decision technologies (such as Operations Research and Artificial Intelligence). This technical committee was founded in August 2001 to provide a forum for exchanging ideas among semiconductor manufacturing researchers and engineers through scientific events, such as special conference sessions, workshops, and symposia, as well as through publications, such as special journal issues.

### Recent activities

- Special Issue on Equipment and Operations Automation in the Semiconductor Industry, *IEEE Transactions on Automation Science and Engineering*, to be published January 2011
- Special Session on Reducing Cost and Maximizing Equipment Productivity co-sponsored by our Technical Committee at the 21<sup>st</sup> Annual IEEE/SEMI Advanced Semiconductor Manufacturing Conference (ASMC 2010), 2010
- New track on Green Technology Automation at IEEE Conference on Automation Science and Engineering, 2010
- Special Session with a focus on Semiconductor Manufacturing, *IEEE Conference on Automation Science and Engineering*, 2006, 2007, 2008, 2009
- Special Issue on eManufacturing in the Semiconductor Industry, *IEEE Transactions on Automation Science and Engineering*, October 2007
- Special Issue on Automation Science and Engineering, *IEEE Robotics and Automation Magazine*, December 2006
- IEEE Robotics and Automation Society **MOST ACTIVE TECHNICAL COMMITTEE** Award, 2005

### Topics of interest

- Advanced process control (APC)
- Agent based intelligent systems
- Algorithms for planning, scheduling & coordination
- Automated material handling systems (AMHS)
- Automation in 300mm prime/450mm wafer generations
- Benchmark and case studies
- Cleantech manufacturing
- Cycle time reduction
- Data mining for yield and production improvement
- Decision support systems (DSS)
- Decision technologies for equipment automation
- Design concepts for equipment and related automation
- Design for Manufacturing (DFM)
- Engineering chains & supply chains
- Equipment engineering systems (EES)
- Equipment productivity improvement
- Factory/cell/equipment-level controller design
- Factory modeling, analysis & performance evaluation
- Factory of the future
- Fully automated factory
- Green technology automation
- Lean manufacturing
- Manufacturing execution systems (MES)
- Mobile and wireless applications (RFID)
- Remote operation center (ROC)
- Wafer release and dispatch policies
- Yield enhancement systems & e-Diagnosis