



ISMI 2018 & IEEE SMILE 2018

International Symposium on Semiconductor Manufacturing and
Intelligence & IEEE International Conference on Smart Manufacturing,
Industrial & Logistics Engineering



February 7-9, 2018, Hsinchu, Taiwan

Keynote Speech (VII)

Using Multi-Agent Systems for Planning and Control of Semiconductor Supply Chains

LARS MÖNCH received the master's and Ph.D. degrees in applied mathematics from the University of Göttingen, Germany, and the Habilitation degree in information systems from the Technical University of Ilmenau. He is a Full Professor with the Department of Mathematics and Computer Science, University of Hagen, Germany. His current research and teaching interests are in production planning and control of semiconductor wafer fabrication facilities, applied optimization and artificial intelligence applications in manufacturing, logistics, and service operations. He has authored over 75 refereed journal papers and book chapters, two monographs, and one edited book. He serves as an Associate Editor for the *IEEE Transactions on Semiconductor Manufacturing*, the *IEEE Transactions on Automation Science and Engineering*, the *European Journal of Industrial Engineering, Business & Information Systems Engineering*, and the *Journal of Simulation*.



Lars Mönch
Professor
University of Hagen

Abstract—In this talk, we discuss the design and the implementation of the S2CMAS multi-agent system prototype that supports planning and control activities in semiconductor supply chains. The proposed system extends the FABMAS prototype for production control of single wafer fabs by additional enterprise-wide planning-related decision-making agents and staff agents. We discuss the requirements for a rich communication of the agents by means of an ontology for planning tasks in semiconductor supply chains. Web services are used to implement certain parts of the new planning functionality. Results of some simulation experiments with the proposed multi-agent system are presented that indicate that the proposed approach is feasible.



ISMI



清華-台積電卓越製造中心
NTHU-TSMC Center for Manufacturing Excellence

