



IEEE Transactions on Semiconductor Manufacturing CALL FOR PAPERS for Special Issue on "Process-Level Machine Learning Applications in Semiconductor Manufacturing"



The constantly increasing availability of data, the rapid expansion in computational and storage capacities of IT systems, and algorithmic advances in Machine Learning (ML) and Artificial Intelligence (AI) are making a huge impact in the manufacturing industry for improving efficiency, operations and throughput. The semiconductor industry, being one of the most data-intensive industries, has seen in the past years the diffusion of several ML-based technologies. In order to develop effective ML-based technologies in the semiconductor manufacturing industry several issues have to be taken into account (scalability, heterogeneity of data, need for interpretability just to name some aspects): such a complex industrial environment calls for non-trivial ML approaches.

The objective of this Special Issue is to showcase real-world applications and algorithmic advancements of ML and AI-based technologies for process modeling and process optimization in semiconductor manufacturing. We are interested in contributions from both industrial practitioners and academics. We invite contributions that are based on (but not limited to) the following topics:

- Virtual Metrology;
- Predictive Maintenance;
- Sensor-based Fault Detection;
- Sensor-based Anomaly Detection;
- Image-based Defect Pattern Classification;
- Image-based Defect Classification;
- Dynamic Sampling;
- Cross-module process control;
- Machine learning applications in yield management and yield learning;
- Applications of AI/ML to Optical Proximity Correction algorithms for patterning.

Important Dates

- Paper submission deadline: August 31, 2021
- Completion of the first round review: November 30, 2021
- Completion of the second round review: January 31, 2022
- Final submission due: March 31, 2022
- Tentative publication date: June 1, 2022.

Guest Editors

Prof. Gian Antonio Susto
University of Padova (Italy)
gianantonio.susto@unipd.it

Prof. Alain Diebold
SUNY Polytechnic Institute (US)
adiebold@sunypoly.edu

Nital S. Patel
Intel Corporation (US)
nital.s.patel@intel.com

Prof. Chia-Yen Lee
National Taiwan University
chiayenlee@ntu.edu.tw

Andreas Kyek
Infineon Technology AG (Germany)
Andreas.Kyek@infineon.com

Paper Submission

All papers are to be submitted through the IEEE's **Manuscript Central** for Transactions on Semiconductor Manufacturing <https://mc.manuscriptcentral.com/tsm-ieee>. Please select "Special Issue" under Manuscript Category of your submission. All manuscripts must be prepared according to the IEEE Transactions on Semiconductor Manufacturing publication guidelines <https://eds.ieee.org/publications/transactions-on-semiconductor-manufacturing>. Please address inquiries to gianantonio.susto@unipd.it.