

2022 IEEE 18th International Conference on Automation Science and Engineering

Workshop on “Semiconductor Smart Manufacturing Technology”

Abstract:

AI-based Smart Manufacturing Systems (AISMS) incorporates various technologies, i.e., Internet of Things (IoT), big data analytics, system modeling, and Artificial Intelligence (AI). Such technologies are permeating different aspects of manufacturing industry and make it smart and capable of addressing challenges such as interoperability, decentralization, distributed control, real-time manufacturing process control, service orientation, and maintenance optimization. As one of the most sophisticated manufacturing industries, semiconductor industry has been actively adopting AISMS to boost productivities.

This is a half-day workshop on semiconductor smart manufacturing technology workshop. The purpose of this workshop is to share with IEEE communities the recent advancement and development of semiconductor smart manufacturing technologies and relevant applications ranging from semiconductor tools scheduling, AI based defect detection and classification, smart equipment dispatch, intelligent process control, etc. The workshop aims to provide technical discussion forum for researchers from different fields and promote interdisciplinary and multidisciplinary research collaboration.

Organizer:

Yan Qiao

Macau University of Science and Technology

Bin Liu

IKAS Industries (Guangdong) Company, Ltd.

Speakers:

Yan Qiao

Macau University of Science and Technology

Hyun-Jung Kim

Korea Advanced Institute of Science and Technology

GuoYi Lin

Tongji University

JunLiang Wang

Donghua University

Mohammadhossein Ghahramani

Birmingham City University

Bin Liu

IKAS Industries (Guangdong) Company, Ltd.

Workshop Program (Beijing Time: August 21, 2022):

Time	Topics	Speakers
14:00 – 14:30	Real-time control policy for time-constrained cluster tools with activity time variation in semiconductor manufacturing	Yan Qiao (In person)
14:30 – 15:00	Optimization models and methods for scheduling of automated manufacturing systems	Hyun-Jung Kim (Online)
15:00 – 15:30	Run-to-run control utilizing virtual metrology for real-time compensation for smart production	GuoYi Lin (In person)

15:30 – 15:40	Break	
15:40 – 16:10	Data driven cycle time control for semiconductor wafer manufacturing systems	JunLiang Wang (In person)
16:10 – 16:40	Application of evolutionary computation in smart manufacturing systems	Mohammadhossein Ghahramani (Online)
16:40 – 17:10	Applications of emerging AI technologies in semiconductor manufacturing	Bin Liu (Online)