THE 31st INTERNATIONAL SYMPOSIUM ON SEMICONDUCTOR MANUFACTURING

December 7-8, 2026 (in conjunction with SEMICON Japan 2026)

KFC Hall, Ryogoku, Tokyo, Japan

CALL FOR PAPERS

Late News Abstract Deadline: September 11, 2026, <PDT 8:00 AM>

For further information about Late News Submission, refer to https://issm.semiconportal.net/cfp/

ISSM has been contributing to the advancement of semiconductor manufacturing from a scientific perspective and has continued its activities to share medium- and long-term improvements as well as short-term and practicable solutions. Recently, with the participation of material and equipment manufacturers in addition to device manufacturers, ISSM has further expanded its presence as the only forum to discuss production and manufacturing technologies based on data, covering process, equipment control, materials, devices, and plant operations. With the vision to "design the future semiconductor manufacturing," ISSM continues to lead innovation in semiconductor production.

Currently, investments and launches of new factories are actively taking place in Japan and around the world. In parallel with the progress in research and development of new device physics and the introduction of new materials to realize transistor miniaturization, a new challenge of ultra QTAT production of AI chips through full single-wafer manufacturing has become a hot topic. Discussions on innovations such as 3D packaging and chiplets integration technologies are also gaining momentum.

Furthermore, in the pursuit of a decarbonized society, active discussions are underway on the evolution toward line reconstruction and operational models for manufacturing new structure devices through the introduction of energy-saving process equipment and new materials. Alongside these new directions, common discussions and interactions among companies and academic research institutions within the semiconductor value chain are becoming increasingly important for the utilization of generative AI and semiconductor chip manufacturing in smart factories.

ISSM2026 will provide a forum for researchers and engineers involved in production technology to engage in discussions and deepen their knowledge based on daily manufacturing activities, while incorporating a bird's-eye view of broad industrial and technological trends and a management perspective. We strongly expect the active participation of the next generation of young semiconductor engineers and the next-next generation of students.

Areas of Interest

Abstract will be accepted for each of following areas of interest.

Fab Management

* Factory Design (FD)
* Manufacturing Strategy (MS)
* Manufacturing Control and Execution (MC)
* Environment, Safety and Health, Carbon Neutral (ES)
* Intelligent Data Management (ID)

Process Integration

* Process/Material Optimization (PO)
* Yield Enhancement and Methodology (YE)
* Ultraclean Technology and Contamination Control (UC)
* Process Monitoring and Control Method (PC)
* Process/Metrology Equipment (PE)
* Design for Manufacturing (DM)
* Innovative Manufacturing Technology (IM)

3D, Chiplets & Advanced Packaging

* 3D Integration, Chiplets Packaging and Advanced Packaging Technology (TP)

<<SCHEDULE(Revised)>>

Extended Abstract Submission Due: August 21, 2026

Late News Abstract Submission Due: September 11, 2026

Notification of Paper Acceptance: October 7, 2026

http://issm.semiconportal.net/

Contact issm_2026@semiconportal.com

Highlighted

Papers on the topi
special session for highlight themes. Papers on the following topics are especially welcome. See more information on the separate paper.

Robotics and AI Solution

-Autonomous Fab Control by Big Data Science
-Automated Maintenance
-Novel Sensing and Data Processing using AI/ML

Next Generation Fab

-Smart Factory and GX
-Sophisticated Transportation including PKG
-Physical Analysis Automation and Short Development Period

Sustainable Manufacturing and Promotion of Global Environmental Conservation

-High Energy Efficiency and Emission Reduction
-Return of Investment in Legacy Fab.

Exploring New Frontiers from Chip Design to Testing: 3D and Chiplets Packaging

-Glass substrate/TGV/Si bridge, 3D interconnection/hybrid bonding/Cu-Cu direct bonding, Interlayer dielectric materials/Sub-micron fine circuit formation technology, Chiplets Packaging technology, Module testing technology

Substrate Surface Cleaning Technology (with the cooperation of the Interfacial Nano Electrochemistry: INE)

-Wet Process, High-Purity Material Processing, Contamination analysis, Clean Manufacturing Environment

ISSM Awards

The ISSM Awards to be presented to the excellent papers

ISSM Best Papers for IEEE/TSM

Best papers for ISSM will have the chance to submit full papers for IEEE/TSM (Transactions on Semiconductor Manufacturing) which is

published quarterly for worldwide distribution. About ten papers are annually selected and reported in ISSM/TSM special session.

◆Details for the Areas of Interest◆

Fab Management

FD: Factory Design
This area focuses on fab design and its key enablers to meet the flexibility, extendibility, and scalability needs of a cost-effective leading-edge fab.
MS: Manufacturing Strategy
This area focuses on strategy and concepts for more functional fab, and its operation management to meet rapidly changing complex business requirements.
MC: Manufacturing Control and Execution
This area focuses on manufacturing execution and decision support systems, factory scheduling, control of equipment/materials handling systems and queue time management.
ES: Environment, Safety and Health, Carbon Neutral
This area focuses on zero greenhouse gas emissions, suppression of energy and materials consumption, recycling and reuse of materials from the standpoint of the environmental management in a semiconductor factory in order to achieve a decarbonized society.
ID: Intelligent Data Management
This area focuses on analysis methods and systems for big data collected in the fab.

Process Integration

PO: Process Optimization
This area focuses on process and material optimization from the standpoint of high reliability, cost reduction and environment. The breakthrough technology to improve the productivity of legacy process is contained.
YE: Yield Enhancement and Methodology
This area focuses on probe yield enhancement and its stabilization technology including inspection, analysis and reduction of defects and particles. Reports for the Zero‐Defect process would be especially attractive.
UC: Contamination Control and Ultraclean Technology
This area focuses on new technology for damage-less particle removal, contamination control of wafer backside and bevel, surface cleaning for new materials and fine structure. Energy saving cleaning and molecular level contamination control in advanced wafer fab will be included.
PC: Process Monitoring and Control Method
This area focuses on tighter process control for advanced production as well as mature fab, to achieve higher productivity, higher uptime, quality enhancement by advanced equipment control/advanced process control (AEC/APC), FDC, e-diagnostics and new sensors. This area also covers accuracy enhancement and smart process control using virtual metrology for advanced nanoscale device manufacturing, 3D profile/high aspect ratio structure control and excursion control for stable equipment.
PE: Process/Metrology Equipment
This area focuses on finer pattern delineation/control. The application of metrology equipment control and engineering system will be highlighted.
DM: Design for Manufacturing
This area focuses on the collaboration between manufacturing and design including RET, OPC, systematic defects, and other approach to improve productivity from design.
IM: Innovative manufacturing technology
This area focuses on manufacturing technologies specialized for emerging variety devices in MEMS, power devices, and CMOS sensors areas which can be realized by technologies not limited to miniaturization or large-diameter wafers.

3D, Chiplets Packaging & Advanced Packaging

TP: 3D Integration, Chiplets Packaging and Advanced Packaging Technology
3D and chiplets packaging technologies are transforming the performance and efficiency of electronic devices, driving them to the next level. This area covers innovations across advanced packaging manufacturing processes, materials, equipment, automated handling systems, interposers, substrates, interconnection technologies, and testing methodologies.

◆Details for the Highlight Themes◆

Robotics and AI Solution

In recent years, autonomous decision-making using big data and applying IoT data mining technology and Machine learning is becoming increasingly common in many manufacturing industries. Meanwhile, in semiconductor manufacturing, there is growing attention being paid to the launch of ultra-cutting-edge products, ultra quick TAT production, and smart factory operation technologies that accommodate generational changes. To realize these production innovations, it is necessary to promote integrated production technologies that utilize elemental technologies such as groundbreaking IoT technology and robotics technology for maintenance, Advanced sensing technology. In this theme, we hope to provide a forum for discussion on groundbreaking elemental technology initiatives and integrated technologies that utilize AI/ML to break through conventional wisdom and realize smart factories.
Topics may include (but not limited to): Automated Maintenance using robotics, Big Data Science in Fab, IoT and Sensing Technology, AI Application, Bayesian Design, Machine Learning, Deep Learning,

Next Generation Fab

Under international cooperation, many semiconductor fabs, not only in Japan, have become a construction rush. Next generation fabs require new concepts, and device manufacturing requires thorough energy conservation from development of devices to manufacturing, consistent cycle time reduction from device design to wafer manufacturing to 3D assembly, and AI implementation. The development and deployment of a wide range of technologies required to solve these challenges will be discussed.
Topics may include (but not limited to): Smart factory, advanced delivery including PKG, automation of physical analysis and reduction of development time, GX.

Sustainable Manufacturing and Promotion of Global Environmental Conservation

Demand for semiconductor chips is increasing, and the use of energy, water, and materials (chemicals, gases, etc.) in semiconductor manufacturing continues to increase. For sustainable semiconductor manufacturing, it is essential to design factories, processes, and recycling that are more environmentally friendly, such as DX and GX. Reducing the use of chlorofluorocarbons, organic solvents, and ultrapure water is also a major challenge for promoting global environmental conservation. Design policies and issues to realize economic efficiency and productivity toward the realization of high efficiency fabs will be discussed.
Topics may include (but not limited to): Energy efficiency, emissions reduction and recycling, return of investment issues in legacy fabs.

Exploring New Frontiers from Chip Design to Testing; 3D and Chiplets Packaging:

3D and chiplets packaging technologies are transforming the performance and efficiency of electronic devices, driving them to the next level. This session will cover innovations across advanced packaging manufacturing processes, materials, equipment, automated handling systems, interposers, substrates, interconnection technologies, and testing methodologies.
Topics may include (but not limited to): ・Glass substrate/TGV/Si bridge, 3D interconnection/hybrid bonding/Cu-Cu direct bonding, Interlayer dielectric materials/Sub-micron fine circuit formation technology, Chiplets Packaging technology, Module testing technology

Substrate Surface Cleaning Technology (with the cooperation of the Interfacial Nano Electrochemistry: INE)

In semiconductor manufacturing, the cleanliness of the substrate surface is a critical factor directly linked to device performance and yield. As device scaling and 3D structural complexity, the advancement of wet-process technologies—including cleaning, etching, drying, and post-CMP cleaning—along with the high purification of process materials, has become increasingly important. Furthermore, analytical techniques capable of detecting nanoscale contamination and the management of cleanroom cleanliness are essential for yield improvement. In this theme, we hope to discuss on element technologies and new approaches related to surface cleanliness in advanced semiconductor manufacturing.