Energie-
Innovationszentrum
Cottbus
SC Lab

EIZ Research Seminar

»Micro Contamination Control for Advanced Semiconductor Manufacturing Processes: Focusing on Automatic Material Handling System (AMHS)«

22nd August 2025
11:00 am (c.t.) - 12:30 pm

FZ 3H
Room 1.04

In the last three decades, the development of Integrated Circuit (IC) technology has significantly changed our living style. The success of minimization of IC is majorly due to the dramatically reduction of Technology Node (from 800~200nm in 1990s to 5nm or even smaller now). In the manufacturing process, the challenges of contamination control on a silicon wafer are much more rigorous and important. The possible contaminants during the fabrication processes or the storage of wafer/mask in a container are particle, oxygen, moisture, and airborne molecular contamination (AMC) etc., which might cause yield reduction and performance deterioration of the device. This brief talk focuses on applications of Fluid Dynamics on micro/nano contamination control in the semiconductor manufacturing processes. Challenges for the technology node of next generation will be highlighted. Some successful examples are to be discussed. Several qualified and standard-installation products by Taiwan semiconductor manufacturing companies will also be presented.

Dr. Shih-Cheng is a Chair and Life Distinguished Professor at National Taipei University of Technology (NTUT). Prof. Hu is one of the renowned researchers in the field of energy and contamination control in semiconductor manufacturing facilities. His novel innovation "a total solution on humidity/oxygen control for wafer automatic handling system" has been imbedded and became a standard-installation for sub-7n process wafer/tool interface equipment utilized today.
Prof. Hu is the key founder of the Taiwan Cleaning Technology Association (TCTA) and was the president of TCTA from 2013 to 2016. He is the major co-author of the book "American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Cleanroom Design Guide", with 21 chapters/425 pages. He has received many University/ Government awards include the National Award for Distinguished Contribution to Industry-Academia Cooperation, a top award arranged by the Ministry of Education, and conferred by the President of TAIWAN in 2023. He is a Fellow grade member of the ASHRAE.

This project is funded by the German government with funds from the Structural Development Act (Strukturstärkungsgesetz) for coal-mining regions and co-financed with funds from the state of Brandenburg.

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Gefördert durch: Die Bundesregierung aufgrund eines Beschlusses des Deutschen Bundestages

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Gefördert durch: Bundesministerium für Forschung, Technologie und Raumfahrt