TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

Institut für Physik

Physikalisches Kolloquium gemeinsam mit dem SFB HYP-MOL



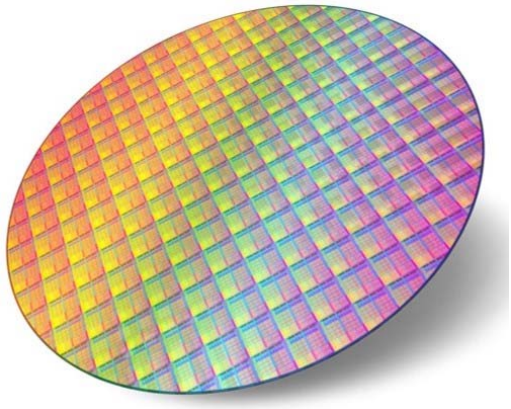
Donnerstag, 07.01.2027, 15:30 Uhr

Ort: Reichenhainer Str. 90;
Zentrales Hörsaal- und Seminargebäude, Raum C10.013

Dr. Björn Brauer

Zeiss, Semiconductor Manufacturing Technology, Jena
Berufliches Gymnasium, Leonberg

From Transistors to Generative AI: Machine Learning for Semiconductor Manufacturing



Beyond conventional transistor scaling, “More than Moore” encompasses diverse approaches to advancing electronics, including spintronics and molecular electronics. The semiconductor industry has transformed computing through advances in device architecture, lithography, and manufacturing. As chips have become more complex, maintaining high manufacturing yields has become increasingly challenging. This talk will trace the development of semiconductor technology from earlier generations to the near future, highlighting FinFETs, extreme ultraviolet lithography, and emerging device architectures.

The second part will explore how artificial intelligence supports defect detection and yield optimization. The methods discussed will range from traditional statistical learning for optical condition optimization and neural networks for defect classification to generative AI, including diffusion models for generating synthetic images and large language models for supporting engineering workflows. These approaches can also be applied to a broad range of analytical challenges, such as interpreting magnetic resonance images and analyzing multidimensional spectroscopic data.

Information zum Vortrag erteilt:
Prof. Dr. Georgeta Salvan
Tel.: 531 33137

Alle Zuhörer sind ab 15:15 Uhr zum Kaffee vor dem Hörsaal eingeladen.

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