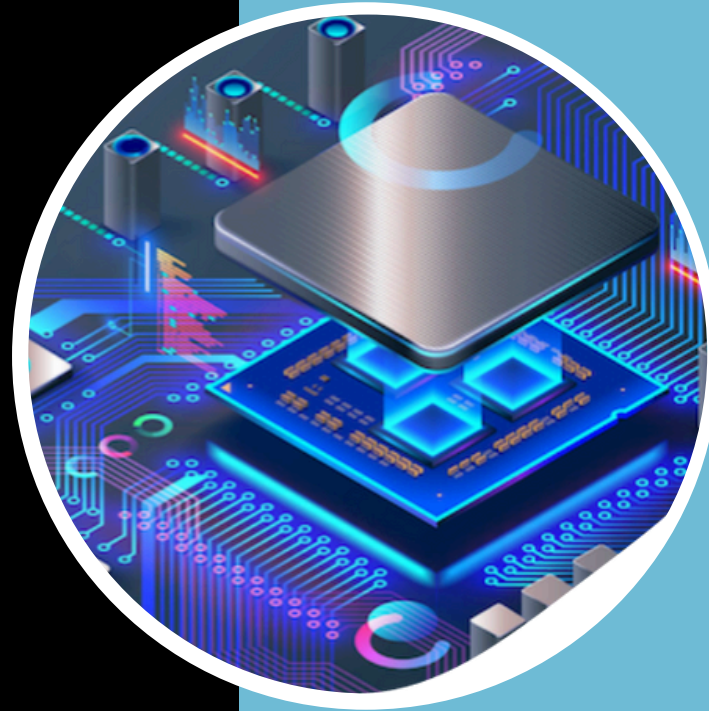


IEEE EPS SEMINAR

Progress and future of heterogenous system integration, packaging and reliability

Thursday, April 10 2025 / TU Delft



Our Speakers:

Prof. Dr. Chris Bailey

Arizona State University, IEEE
Fellow, chair of the IEEE EPS
Phoenix Chapter

Dr. Gamal Refai-Ahmed

AMD SR Fellow, IEEE Fellow, ASEM
life Fellow, Member of NAE, IEEE
Distinguished Lecturer

Prof. Dr. Xuejun Fan

Lamar University, IEEE Fellow,
IEEE Distinguished Lecturer

Mudasir Ahmad

Google, manager of System
Reliability & Adv. Numerical
Analysis, IEEE Distinguished Lecturer

Saurabh Singh

Senior Product Manager for
Advanced Packaging market in
business line DUV of ASML



Seminar overview



Driving the success of European semiconductors

Heterogeneous system integration, packaging and reliability play a crucial role for the current and future development of semiconductors, quantum technologies and photonics. They are the key enabler to create new functionalities and business opportunities through the integration of different types of cost-effective and high-performance chips, technologies and materials into a single system.

This seminar will discuss the progress and future challenges of heterogeneous integration, packaging, reliability and the potentials of creating more industry and business value. Join us to explore the exciting opportunities that heterogeneous system integration can offer for the European ecosystem.

Agenda

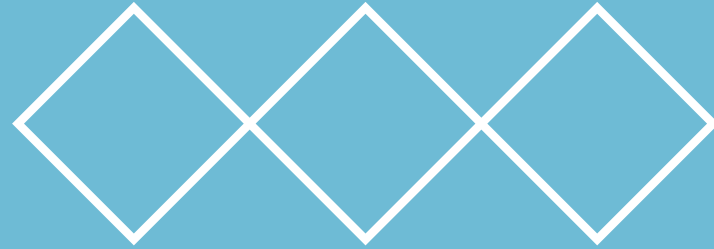
- Welcome coffee..... 08:30–08:50
- Welcome speech..... 08:50–09:00
- Prof. Dr. Chris Bailey..... 09:00–09:35
- Dr. Gamal Refai–Ahmed..... 09:35–10:10
- Prof. Dr. Xuejun Fan..... 10:10–10:45
- Mudasir Ahmad..... 10:45–11:20
- Saurabh Singhir..... 11:20–11:55



US Chips Act for Advanced Semiconductor Packaging and related programs at Arizona State University

Presentation 1 09:00-09:35

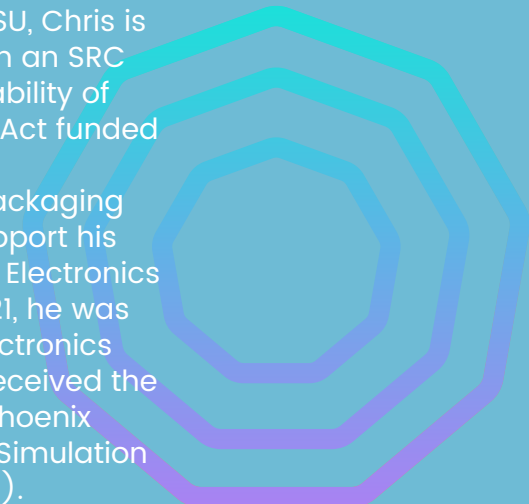
Arizona State University, IEEE Fellow, chair of the IEEE EPS Phoenix Chapter



Prof. Dr. Chris Bailey

Chris Bailey joined Arizona State University (ASU) in 2022 where he is Professor of Advanced Semiconductor Packaging. Prior to this he was Professor of Computational Mechanics & Reliability and Associate Dean for Research at the University of Greenwich, UK.. At ASU, Chris is leading on advanced semiconductor packaging, he is PI on an SRC funded project on Thermo-Mechanical Modelling and Reliability of Redistribution Layers, and Co-I on several large US-Chips-Act funded projects such as SWAP-Hub, SHIELD, and ITSI.

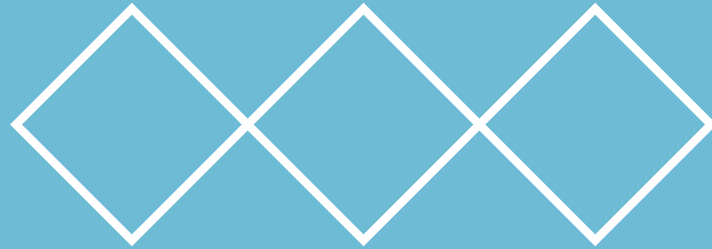
Chris has published 400+ archival papers in electronics packaging and received \$40M+ from Government and Industry to support his research activities. Since 2010, Chris has served on the IEEE Electronics Packaging Society Board of Governors, and from 2020-2021, he was the President of the society. Recent awards include IEEE Electronics Packaging Society David Feldman Award and in 2024 he received the Societies Region 8 (Europe) award. He is chair of the EPS Phoenix Chapter, and co-chair for the Co-Design and Modelling & Simulation chapters for the Heterogeneous Integration Roadmap (HIR).



Current and Future Challenges and Solutions in AI & HPC System and Thermal Management

Presentation 2, 09:35-10:10

SR Fellow AMD, IEEE Fellow,
ASEM life Fellow, Member of
National Academy of
Engineering



Dr. Gamal Refai-Ahmed

Dr. Gamal Refai Ahmed is a highly respected technical executive with a distinguished career in thermal management, silicon architecture, and advanced packaging technologies. He has made substantial contributions to high-performance computing (HPC), artificial intelligence (AI), and microelectromechanical systems (MEMS). Dr. Refai Ahmed has held senior positions at leading companies including AMD, GE, Cisco, and Nortel.

In his current role at AMD as Senior Fellow and Chief Architect, Dr. Refai-Ahmed has been pivotal in developing advanced silicon power thermo-mechanical architectures and enhancing hardware thermal management and packaging technologies for Xilinx products across various sectors, including telecom, data centers, and automotive.

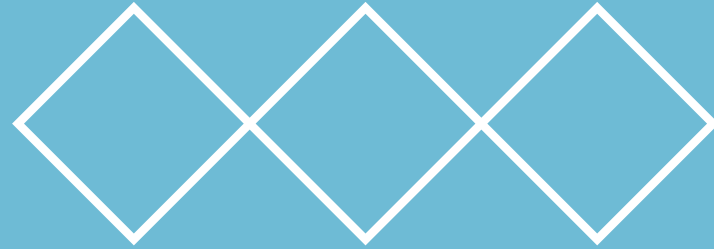
Dr. Refai Ahmed's achievements have been recognized with his election to the National Academy of Engineering and Fellowships with IEEE, ASME, and the Canadian Academy of Engineering. He has received the Presidential Medal from Binghamton State University, as well as the IEEE Canada R.H. Tanner Industrial Leadership Silver Medal Award.

He has over 160 patents and over 120 publications. He is also an IEEE Distinguished Lecturer.

Advanced Packaging Challenge for Chiplets and Heterogeneous Integration

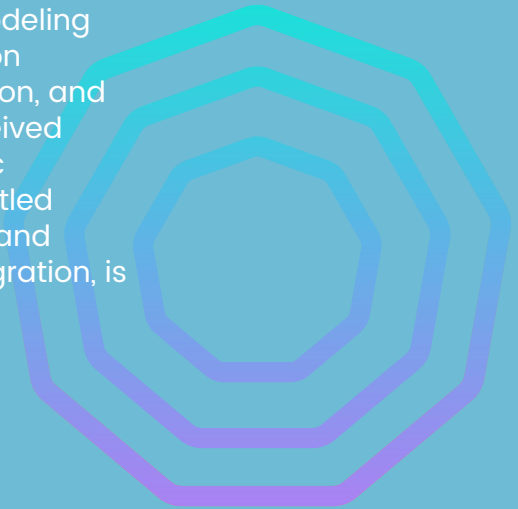
Presentation 3, 10:10–10:45

Lamar University, IEEE Fellow,
IEEE Distinguished Lecturer



Prof. Dr. Xuejun Fan

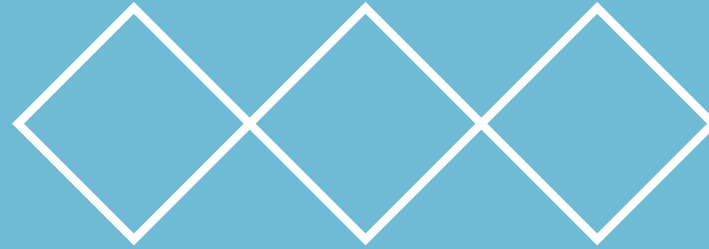
Dr. Xuejun Fan is a Regents' Professor of the Texas State University System and the Mary Ann and Lawrence E. Faust Endowed Professor at Lamar University, Beaumont, Texas. He is an IEEE Fellow, an IEEE Distinguished Lecturer, and serves as the co-chair of the Modeling and Simulation Committee for the Heterogeneous Integration Roadmap. Dr. Fan's expertise lies in modeling, characterization, and reliability studies for heterogeneous integration. He has received several prestigious awards for his contributions to electronic packaging. His latest book, co-authored with Dr. John Lau, titled *Hybrid Bonding, Advanced Substrates, Failure Mechanisms, and Thermal Management for Chiplets and Heterogeneous Integration*, is set to be published in May 2025.



Multi-Physics Simulations: Accelerating Microelectronics Packaging for Artificial Intelligence Applications

Presentation 4, 10:45-11:20

Google, manager of System
Reliability & Adv. Numerical
Analysis, IEEE Distinguished
Lecturer



Mudasir Ahmad

Mudasir Ahmad is the group manager of the System Reliability and Adv. Numerical Analysis Team in the Global Hardware Quality and Reliability Organization in Google Technical Infrastructure.

Before Google, he was a Distinguished Engineer/Senior Director at Cisco Systems, Inc. He has been involved with mechanical design, microelectronics packaging design and reliability analysis for more than 20 years, also in next generation 3D packaging, System-in-Package Modules, Chiplets and Silicon Photonics.

He is a Distinguished Lecturer of the IEEE EPS and participates in standards organizations and consortia such as IPC, JEDEC and ODSA. He was the chair of the local EPS chapter. He received the internationally Renowned Outstanding Young Engineer Award in 2012 from IEEE.

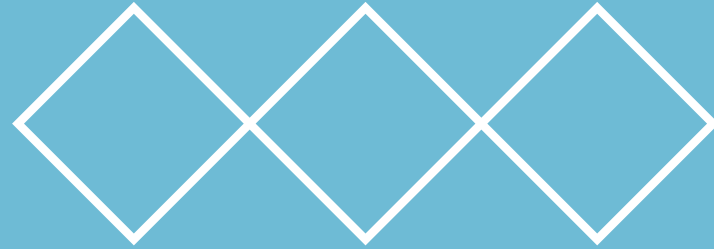
He received his M.S. in Management Science & Engineering at Stanford University, his M.S. degree in Mechanical Engineering from Georgia Tech and his B.S. from Ohio University. Mudasir has over 30 publications on microelectronic packaging, two book chapters, and 17 US Patents.



Lithography Innovations for Artificial Intelligence

Presentation 5, 11:20–11:55

Senior Product Manager for Advanced Packaging market in business line DUV of ASML

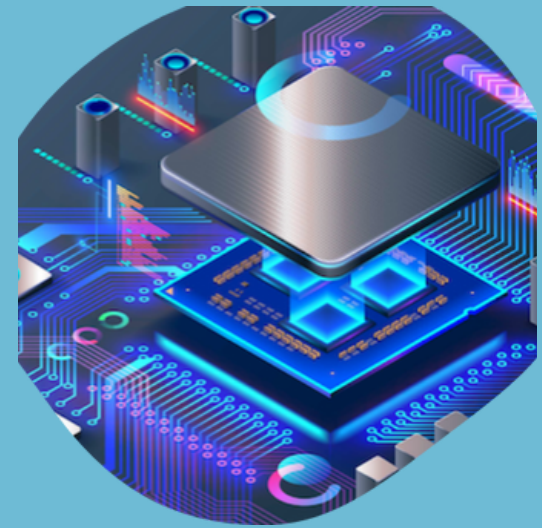
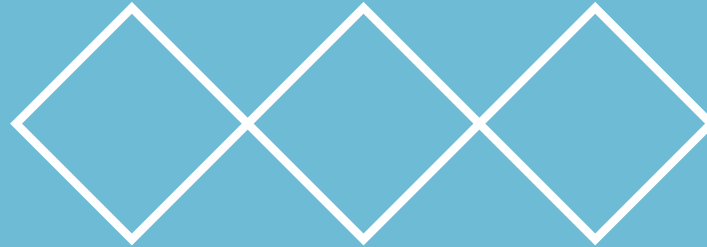
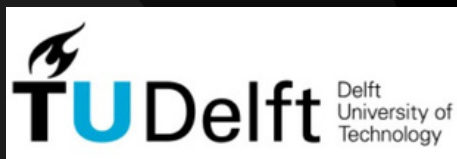


Saurabh Singh

Saurabh Singh is Senior Product Manager for Advanced Packaging market in business line DUV of ASML, Netherlands. Over his 17 years ASML career he has held positions in Applications Engineering, Customer support, New product Introduction & Corporate Marketing. He has worked on wide variety of semiconductor applications of lithography from i-line to EUV. His current interest is next generation of advanced packaging & enabling these architectures by defining differentiated lithography solutions. He received his B Tech Electronics & Communication Engineering in India, and a MS in Photonics from Ghent University, Belgium. E-mail: saurabh.singh@asml.com



Organizers:



Due to limited seats, **cost-free registration** is required, by contacting secr-ectm-ewi@tudelft.nl.

Event on Thursday, April 10th 2025, TU Delft.

Online registration deadline: April 3rd, 2025.

Location: EEMCS-Lecture Hall Chip, 36.HB.01.600, TU Delft, Netherlands