

CONNECTIONS

LATEST NEWS AND UPDATES FROM
SEMICONDUCTOR RESEARCH CORPORATION



Announcing MAPT Roadmap; Seeking Public Comments

We are proud to announce the publication of the Microelectronics and Advanced Packaging Technologies (MAPT) roadmap - a new comprehensive guide to the forthcoming microelectronic revolution, stemming from a competitively-selected award granted by NIST in April 2022. The MAPT roadmap represents the inevitable shift of microelectronics from the historical two-dimensional (2D) device-centric paradigm to a future that exploits 3D and heterogeneous integration to seamlessly integrate multiple chiplets that enable complex System-in-Package platforms. The new paradigm uses system-scale design and architecture to integrate electronics, photonics, and micromechanical chiplets, taking into account cross-platform issues and relying critically on the rise of advanced packaging technologies.

We are actively seeking public feedback on the interim MAPT roadmap. [Readers will find the draft along with instructions for public comments at SRCMAPT.ORG.](https://srcmapt.org) The comments period for collecting feedback will close May 1, 2023. The MAPT roadmap will be finalized and become public in October 2023.

NSF Future of Semiconductors (FuSE) as an opportunity for semiconductor workforce development

The NSF Future of Semiconductors (FuSe) solicitation with industry partners Ericsson, IBM, Intel, and Samsung will address across the stack research in the areas of materials, devices and systems to advance US semiconductor manufacturing and applications technology capabilities while simultaneously growing the semiconductor research and development talent pool. Three research topic areas are identified for support in FY 2023: Collaborative Research in Domain-Specific Computing; Advanced Function and High-Performance by Heterogeneous Integration; and New Materials for Energy-Efficient, Enhanced-Performance and Sustainable Semiconductor-Based Systems. While the NSF FuSe solicitation is not associated with SRC, it could complement and benefit SRC's GRC and JUMP 2.0 program with a pipeline of talented students. [Find the full text of the FuSe solicitation here.](#)

Prof. Jason Cong from JUMP 2.0 PRISM Center received the 10-Year Retrospective Most Influential Paper Award at ASP-DAC 2023



Image credit: UCLA

It gives us great pleasure to announce Prof. Jason Cong received the 10-Year Retrospective Most Influential Paper Award at ASP-DAC 2023! Professor Jason Cong and his former Ph.D. students Guojie Luo and Bingjun Xiao and former postdoc Kalliopi Tsota received the 10-Year Retrospective Most Influential Paper Award this week from the 28th Asia and South Pacific Design Automation Conference (ASP-DAC'2023) for their work "Optimizing Routability in Large-Scale Mixed-Size Placement" presented in ASP-DAC'2013 in Yokohama, Japan in January 2013. This is the third paper from Prof. Cong's group to receive the 10-Year Retrospective Most Influential Paper Award at ASP-DAC. ASP-DAC started in 1995 and is the largest conference in Asia and the South-Pacific regions in the Electronic Design Automation (EDA) area for VLSI and systems. [The paper can be accessed from the IEEE Xplore.](#)



Image credit: UFL

Prof. Mark Tehranipoor Elected as Fellow of the National Academy of Inventors (NAI)

We are thrilled to share that SRC GRC Hardware Security PI Dr. Mark Tehranipoor has been elected as a fellow of the National Academy of Inventors (NAI). On his [LinkedIn page](#), Mark stated: "I am truly honored and humbled to be elected as a Fellow of the National Academy of Inventors for '*having demonstrated a highly prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on the quality of life, economic development, and welfare of society.*' Thanks to NAI, my family, friends, colleagues, collaborators, and the University of Florida for their continuous support. I dedicate this to the Iranian women who have demonstrated to the world the new meaning of resiliency, bravery and courage." Congratulations, Professor!

Dr. Marcus Pan, SRC program manager, joined ChipletSummit SuperPanel on Successful Co-Design Package in a post-Moore Era

Chiplet Summit welcomed over 500 participants to its inaugural event in San Jose last month. The focus of the summit was on using chiplets to make big chips easier and cheaper to design, and all aspects of this promising new approach. SRC program manager Dr. Marcus Pan joined the superpanel moderated by founder and president of TechSearch International, Jan Vardaman. The panel discussed successful co-package design and highlighted SRC research. Other notable panelist included Brett Wilkerson (AMD) and John Ferguson (Siemens EDA), both active participants in the SRC Liaison program, as well as Bob Patti from nHanced Semiconductors, and long-time SRC-funded researcher Professor Paul Franzon (NCSU).



Call For Abstracts: Closing March 15



TECHCON 2023 will be held at the Renaissance Austin Hotel in Austin, Texas from September 10-12, 2023.

The two-day conference features:

- 160 scholar presentations and posters
- Undergraduate poster sessions
- TechConnect & many other networking opportunities
- CareerConnections
- Awards and much more!

[Submit Your Abstract](#)



Call For Award Nominations

Please visit [SRC.org/award](https://src.org/award) for instructions to nominate.

MAHBOOB KHAN OUTSTANDING LIAISON (CLOSING 4.7.23)

The Mahboob Khan Outstanding Liaison Award recognizes Liaisons who have had a significant impact on the technical contributions of the research, have been instrumental in transferring the research results to industry, and are deeply committed to the education of graduate students.

University Researcher Recognition

ARISTOTLE AWARD (CLOSING 4.7.23)

The Aristotle Award recognizes SRC-supported faculty whose deep commitment to the educational experience of students has had a profound and continuing impact on their professional performance and consequently a significant impact for members over a long period of time.

TECHNICAL EXCELLENCE AWARD (CLOSING 4.7.23)

The Technical Excellence Award recognizes research of exceptional value to SRC members and which enhances the productivity and competitiveness of the semiconductor industry.

YOUNG FACULTY AWARD (CLOSING 3.21.23)

The Young Faculty Award recognizes and promotes rising researchers in the SRC community.

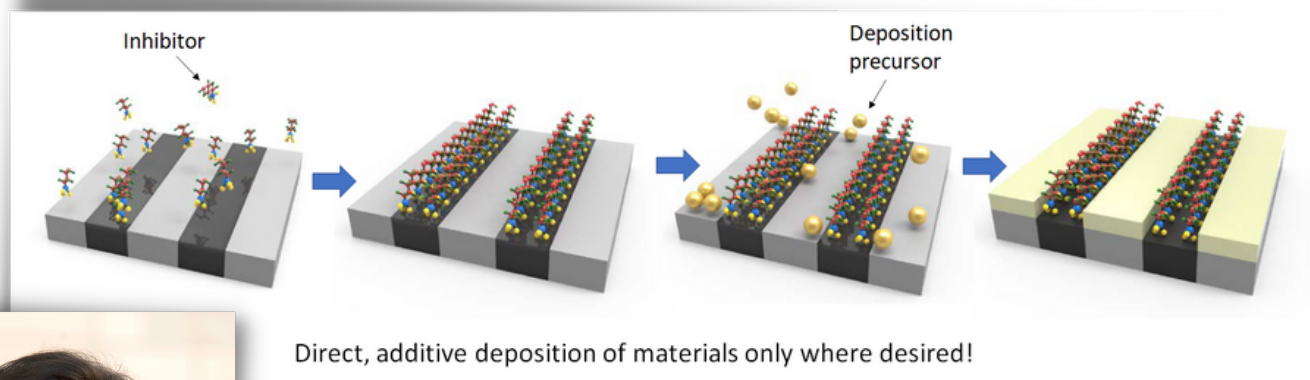
INNOVATION AWARD (CLOSING 4.7.23)

The newly introduced Innovation Award recognizes Patents and IP arising from SRC research that have made a significant impact on the semiconductor industry.

SUSTAINABLE FUTURE AWARD (CLOSING 4.7.23)

The Sustainable Future Award recognizes and celebrates noteworthy SRC research aligned to SRC's Commitment to Sustainability.

NIST and SRC work together on the future of semiconductor manufacturing



A patent application entitled “Advanced Precursors for Selective Atomic Layer Deposition Using Self-Assembled Monolayers” resulted from nCore research task [2819.025](#) led by Prof. Stacey Bent at Stanford. The work was jointly sponsored by SRC and NIST. Bent’s group further advanced methods for atomic layer deposition (ALD) for electronic device fabrication and extended the compositional diversity of films in area selective ALD (ASD). With the ongoing transition from two-dimensional (2D), smaller-transistor-centric paradigm to 3D chips, area selective ALD is becoming the “bread and butter” of semiconductor manufacturing, including nanopatterning. As some say, “Dep and Etch is the new litho.” Prof. Bent is recognized as one of the premier researchers in the world working on area selective deposition. The close engagement between the research team and industry liaisons from Intel, EMD, Micron, and Samsung have been invaluable to the success of the project. SRC is committed to helping area selective ALD move from lab to fab in the next few years. We celebrate our faculty teams like Prof. Bent and her scholars!

LISTEN NOW!

Episode 65: A Sprint to Tomorrow, Powered by Teamwork



Voices from
DARPA

Our very own Dr. Adam Knapp, program manager of JUMP 2.0, was interviewed by the [Voices from DARPA](#) podcast along with Prof. Tajana Rosing of UCSD, Director of the JUMP 2.0 PRISM Center, and Dr. Dev Palmer, Deputy Director of MTO at DARPA. All three of these experts bring rich, diverse perspectives to an effort that is critical to the future – and that serves as a bedrock for broader initiatives to strengthen U.S. leadership in microelectronics. *Teamwork makes the dreamwork!*