

# Applied Materials invests in ASU to advance technology for a brighter future

**Global giant funding state-of-the-art facilities, leading-edge research projects and student scholarships**

By Kelly deVos, ASU News  
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For nearly 60 years, global giant [Applied Materials](#) has been hard at work engineering technology that continues to change how microchips are made.

Their products power everything from flat-panel televisions to smartphones to electric vehicles. Applied Materials has been awarded more than 22,000 patents, and their influential 1980s-era [Precision 5000](#) chip fabrication system sits in the Smithsonian's permanent collection.

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## About this story

There's a reason research matters. It creates technologies, medicines and other solutions to the biggest challenges we face. It touches your life in numerous ways every day, from the roads you drive on to the phone in your pocket.

The ASU research in this article was possible only because of the longstanding agreement between the U.S. government and America's research

But the largest U.S. manufacturer of semiconductor equipment is also advancing something else: the spirit of innovation.

The company is investing in an array of initiatives within the [Ira A. Fulton Schools of Engineering](#) at Arizona State University that are designed to accelerate discoveries, help researchers respond to real-world challenges and train the workforce of the future.

Applied Materials recently awarded a slate of research grants to Fulton Schools faculty members. The projects aim to combine core Applied Materials technology and new research by ASU experts to advance the microelectronics industry. The company has also launched an endowed scholarship that supports an annual cohort of six students in engineering fields.

Satheesh Kuppurao, Applied Materials vice president for business development and growth in the Semiconductor Products Group, says that he's hopeful that the relationship with ASU will create impactful innovations.

"When we came to ASU, we found world-class faculty doing world-class research," Kuppurao says. "We thought that we could put down roots here and work together to solve the toughest challenges."

Meanwhile, construction of the [Materials-to-Fab Center](#) was announced in 2023 and continues at a brisk pace. Once complete, the \$270 million shared development and prototyping facility at ASU Research Park will serve as a collaborative environment where ASU and Applied Materials will provide students and faculty with opportunities for hands-on learning and research.

ASU is the largest university partner of Applied Materials, and [David Wahls](#), an executive director of development at the [ASU Foundation for a New American University](#), says the Fulton Schools is thrilled to play a key part in the relationship.

"We are honored and grateful for the Applied Materials partnership, a forward-thinking collaboration to advance the semiconductor industry at all levels — workforce, research and solutions directly impacting the future of the industry," Wahls says.

## Helping researchers realize real results

Fulton Schools faculty members have received funding awards from Applied Materials for projects that are likely to spur innovation as well as industrial and academic progress. A variety of projects designed to foster the development of new materials and improve manufacturing techniques are already underway.

In the [School for Engineering of Matter, Transport and Energy](#), Professor [Seth Ariel Tongay](#) is working with the company on several projects that explore how 2D materials could be used in advanced semiconductor manufacturing. These materials, which can be only a few atoms thick,

universities. That compact provides that universities would not only undertake the research but would also build the necessary infrastructure in exchange for grants from the government.

That agreement and all the economic and societal benefits that come from such research have recently been put at risk.

Learn about more solutions to come out of ASU research at [news.asu.edu/research-matters](https://news.asu.edu/research-matters).

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might improve the flow of electrical energy to boost speed and efficiency.

“Our work could lead to faster, smaller and more energy-efficient chips, enabling breakthroughs in artificial intelligence, computing and next-generation technologies,” Tongay says.

[Houqiang Fu](#), an assistant professor in the [School of Electrical, Computer and Energy Engineering](#), is also partnering with Applied Materials on the quest for new materials. He studies the use of gallium nitride, a silicon alternative that can handle higher voltages, temperatures and frequencies — a potential solution for microelectronics used in things like electric vehicle chargers.

In the [School of Computing and Augmented Intelligence](#), researchers are exploring how artificial intelligence could be used to make the production process more efficient. For example, Professor [Baoxin Li](#) is working on new AI models that can analyze manufacturing recipes, and Assistant Professor [Kookjin Lee](#) is developing scientific machine learning systems for plasma chambers.

Vik Banthia, vice president of front-end products and treatments in the Semiconductor Products Group at Applied Materials, said the company wants to drive long-term results.

“We’re looking for that moonshot,” he says. “We want to partner with academia on developments that are five to 10 years out.”

## Connecting students with career opportunities

On Tuesday, April 8, students convened in the Paul C. Helmick Center on the Tempe campus for the first-ever Applied Materials Innovation Day.

The event provided students with the unique opportunity to hear from Applied Materials researchers about projects in development, as well as learn about the company’s overall strategic vision from its leadership.

Renee Sailus, a Fulton Schools materials science doctoral student, appreciated the opportunity to connect.

“A lot of us are industry bound,” she says. “Being able to learn about the company’s structure and seeing its expectations is fantastic.”

Fulton Schools students spent the morning attending informational sessions. In the afternoon, they participated in an executive fireside chat and had the opportunity to connect directly with the Applied Materials hiring team.

They peppered the executives with questions about their backgrounds, how to protect budding careers from potential challenges posed by AI and the essential qualities for success.

Banthia told the students that the future looks bright.

“The semiconductor industry will be even more important in the future,” Banthia says. “It’s becoming a form of infrastructure for any growing economy.”

Kuppurao urged students to develop both their technical and interpersonal careers.

“Find what you’re passionate about and pursue it with drive and commitment,” he said.

The event underscores efforts underway to prepare students for impactful careers. In fall 2024, six recipients were awarded scholarships from the [Applied Materials Momentum Fund](#).

Nabiha Alam, a junior seeking a degree in electrical engineering, studies digital design and power systems. During her first two years at ASU, she worked three jobs while also attending school full-time. She says the scholarship from Applied Materials has enabled her to focus on learning.

“Navigating college on my own has been difficult to manage because of the cost,” Alam says. “I come from a really low-income household, and I am grateful for every scholarship I receive, which helps me work less hours during school.”

Lakshmi Jayant, a materials science engineering undergraduate student, says she is grateful for the scholarship and hopes to one day help create new materials.

“In the future, I truly wish to be a part of Applied Materials, where I can contribute to innovative research and development in the semiconductor industry,” Jayant says.

Joseph Werner, vice president of service digital tools in Applied Global Services, says he is looking forward to welcoming the next generation to the workplace.

“We want smart people who show up and ask smart questions,” he says.

[Kyle Squires](#), senior vice provost of engineering, computing and technology at ASU and dean of the Fulton Schools, says that the collaborations will solidify Arizona’s role as a microelectronics powerhouse and help fill the jobs pipeline with well-qualified, highly trained team members.

“These collaborations give our students unparalleled access to next-generation technologies and challenges, preparing them for high-impact careers while enabling faculty to drive forward transformative semiconductor research,” Squires says.

*This story originally appeared on [ASU News](#).*

## Main image



From left to right: Satheesh Kuppurao, Applied Materials vice president for business development and growth in the Semiconductor Products Group; Kyle Squires, senior vice provost of engineering, computing and technology for Arizona State University and dean of the Ira A. Fulton Schools of Engineering; and Vik Banthia, Applied Materials vice president of front-end products and treatments. At the inaugural Applied Materials Innovation Day, the group discussed the collaborative potential between industry and academia. Photo by Charlie Leight/ASU