PURDUE UNIVERSITY | Birck Nanotechnology Center

BIRCK BUILDS THE FUTURE

The nation's only AI/digital twins-enabled academic research facility

500+
ACADEMIC AND INDUSTRY USERS

48
RESIDENT FACULTY

6
ACADEMIC COLLEGES

The highlight of our shared-use facility is the professionally staffed 25,000 sq. ft. **Scifres Nanofabrication Laboratory** cleanroom and its state-of-the-art suite of tools. Taken together with specialized characterization labs throughout the Birck facility, this fosters an environment where the research community is able to design, fabricate and measure materials and devices at the nanoscale and integrate them at the advanced system and packaging level.

ABOVE: Work at an etch tool in Birck's Scifres cleanroom. (Charles Jischke) BELOW: Purdue University and federal representatives celebrate $100M renovations at the Birck Nanotechnology Center and Scifres Nanofabrication Laboratory. From left, Zhihong Chen, director of Birck Nanotechnology Center; Sethuraman Panchanathan, NSF director; U.S. Sen. Todd Young, R-Ind.; Mung Chiang, Purdue University president (Purdue University photo/ Kelsey Lefever)

BOUNDARY-CROSSING COLLABORATION

Birck enables collaboration among faculty, researchers and staff engineers, and facilitates partnerships with other academic institutions, industry, and government. It serves as a platform for public and private partnership, bringing together diverse expertise and resources to address pressing challenges in the field of nanotechnology.

Visit us at **NANO.PURDUE.EDU** for more information on Birck's facility resources including nanofabrication and characterization

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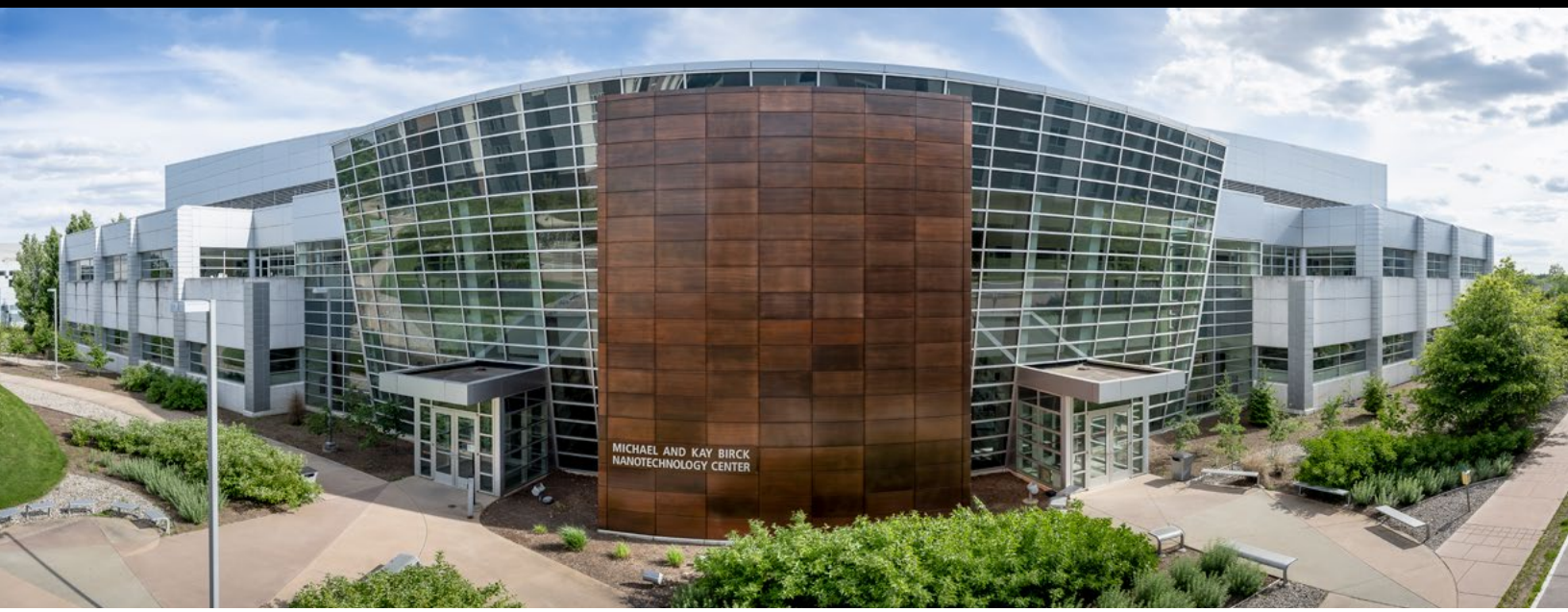


ABOVE: Exterior of Birck Nanotechnology Center; RIGHT: Graduate research assistant working at a cryogenic probe station. (Purdue University/Charles Jischke)

AREAS OF RESEARCH EXCELLENCE

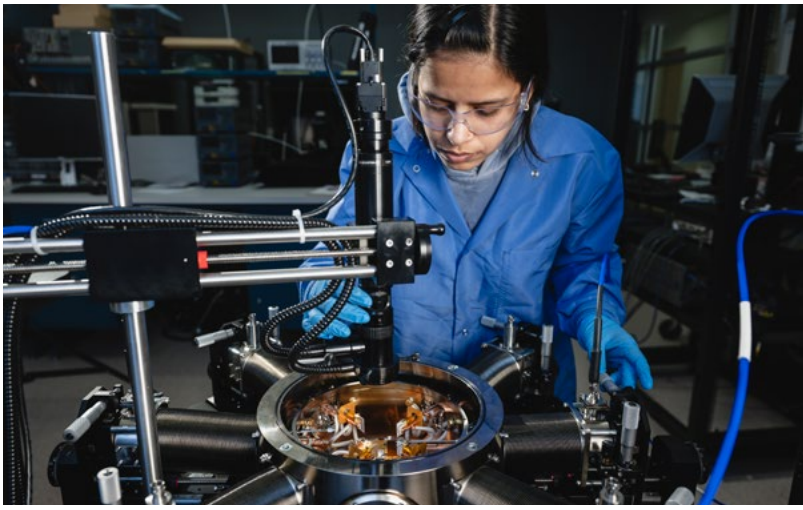
- Nanoelectronics and semiconductor devices
- Nanophotonics, quantum optics and quantum materials
- Micro- and nano-electromechanical systems for RF engineering, transducers and sensors
- Energy conversion and heat transfer
- Materials synthesis and characterization
- Advanced packaging and heterogeneous integration

CREATING OPPORTUNITIES FOR EDUCATION

Programs such as **Semiconductors@Birck** offer undergraduates multi-semester, hands-on experience working in our industry-grade cleanroom. Through Vertically Integrated Projects (VIP) teams, the students work on real-world fabrication and measurement challenges using state-of-the-art equipment under the mentorship of world-leading faculty and professional staff experts.

HOME TO PURDUE'S LEADING-EDGE WORK IN SECURE MICROELECTRONICS

Birck is home to Purdue's leading research, development and workforce training efforts in secure/trusted microelectronics and semiconductor technology, supporting researchers in their efforts to meet national need.



Mentoring in the educational bay of the Scifres cleanroom. (Purdue University/Charles Jischke)

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