

PUSHING

THE BOUNDARIES OF POSSIBLE

Research at Birck leads to fundamental science discoveries and development of new technologies that can revolutionize industries.

The highlight of our shared-use facility is the professionally staffed 25,000 sq. ft. **Scifres Nanofabrication Laboratory** clean room 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.

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.



High temperature thermal measurement of materials (Purdue University/Charles Jischke)

Metrology in the Scifres Nanofabrication Laboratory (Purdue University/Vincent Walter)

500+
ACADEMIC AND
INDUSTRY USERS

60
RESIDENT
FACULTY

6
ACADEMIC
COLLEGES

P
PURDUE
UNIVERSITY®

Birck Nanotechnology Center



Exterior of Birck Nanotechnology Center (Purdue University/Charles Jischke)

AREAS OF RESEARCH EXCELLENCE INCLUDE:

- 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

Birck provides a large number of students across educational levels with a high quality, hands-on experience working in an industry-grade cleanroom with state-of-the-art equipment in close collaboration with world-leading faculty and professional staff experts.



U.S. Secretary of Commerce Gina M. Raimondo (left) followed by U.S. Secretary of State Antony Blinken (middle) speaks with Purdue President Emeritus Mitch Daniels (right) during a tour of Birck Nanotechnology Center, September 2022. (Purdue University/Charles Jischke)



Discussion in the sputtering bay in the Scifres Nanofabrication Laboratory (Purdue University/Vincent Walter)

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.



For more information on Birck's facility **resources** including characterization and nanofabrication.