



## **Creating the Birck of Tomorrow: New Spaces and New Tools for Nanofabrication and Characterization**

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Engineering Manager  
Birck Nanotechnology Center

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Research Manager



**Wednesday, March 5<sup>th</sup> @ 2:00 pm in BRK 1001**

*Coffee and snacks served before seminar*

**also on [MS TEAMS](#)**

### **Abstract:**

Ron and Neil will update the research community on the great progress we've made in the Birck Modernization Project. The major renovation of the Scifres cleanroom – which is nearing completion – increases the usable footprint of research bays and optimizes the space for a complete new 8" (200 mm) wafer scale toolset for nanofabrication, including thermal, patterning, deposition, etch and metrology. We will also highlight new labs for advanced packaging, and future facility plans to establish an AI/Digital Twin-enabled fabrication facility. In the characterization labs, cutting-edge tools have recently been installed for near-field optical spectroscopy, electrical probing in extreme environments, and helium ion microscopy/FIB. We also look forward to the establishment this year of the Quantum Core instruments including a dilution refrigerator for optical, RF, and electrical transport at ultralow temperatures; cryogenic scanning diamond NV microscopy; a high magnetic field optical cryostat and other advanced capabilities.

### **Bios:**

Ron Reger (MS in Physics from Purdue, 1978) has been the Engineering Manager at Birck since joining in 2008, overseeing the engineering group that develops micro- and nano-technology processes and equipment. Before joining Birck he had a career in automotive electronics at Delphi Electronics & Safety, including being a member of the team that designed and built Fab III, a 60,000 sq ft manufacturing cleanroom, and later a Chief Engineer supervising a 75 person world-wide organization responsible for design, development, and manufacturing of automotive grade wireless two-way voice and data communication products.

Neil Dilley (Ph.D. in Physics from UCSD, 1999) has been a research scientist at Birck since 2016 and the Birck Research Manager since 2023, overseeing a research scientist group for characterization labs at Birck in areas of surface science, electrical probing, near-field optics, and cryogenic physical properties measurements. Before joining Birck he worked for 16 years at Quantum Design, Inc. in San Diego, CA in the areas of research applications and new product development for their line of cryogenic research tools.