University of Miami, Physics Department Colloquium

Date: Wednesday, Nov 6, 2024
Time: 4:00 pm – 5:00 pm
Location: Wilder Auditorium – Rm 112, Knight Physics Building

Broadening Carbon Ring

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Abstract

Carbon has driven transformative advancements throughout human history. The diverse potential of carbon materials arises from the varied combinations of sp, sp2, and sp3 carbon atoms, creating a spectrum of 0D, 1D, and 2D nanostructures. These unique forms hold immense promise for groundbreaking applications in quantum computing, terahertz communications, next-generation energy storage, and carbon capture. However, progress in scaling and integrating carbon devices into complete systems remains limited by knowledge gaps between various carbon allotropes and fabrication techniques. Just as a coordinated approach was essential to propel silicon technology forward, an organized, strategic exploration of carbon synthesis and system integration is critical for carbon to reach its full potential. This presentation will introduce the NSF Accelnet implementation project "Broadening Carbon Ring" and highlight her recent innovations in tuning carbon microstructures and interfaces and developing hybrid carbon materials for energy storage and sensing devices.

Biography

Chunlei (Peggy) Wang is a professor in the Mechanical and Aerospace Engineering Department at the University of Miami. She earned her PhD in Solid State Physics from Jilin University in 1997. From 2006 to 2023, she dedicated 17 years to Florida International University (FIU), progressing from a tenure-track assistant professor to a full professor. Before FIU, Prof. Wang held various research positions at Osaka University and the University of California, Irvine. Additionally, she co-founded Carbon Microbattery Corporation (now Enevate Corp) and served as a consultant at Intel Lab in 2012. Throughout her career, she assumed visiting professor roles at Max Planck Institute (2012-2013), University of Alabama (2019), Kochi University of Technology (2019, JSPS fellow), Naval Surface Warfare Center Carderock Division (2020), and Technical University of Denmark (2022, Otto Mønsted visiting professor). Prof. Wang's research group specializes in developing micro and nanofabrication methods to create innovative micro and nanostructures and synthesizing nanomaterials with unique structures and properties beneficial for energy and biological applications. Her contributions have been recognized with several awards, including the FIU Faculty Award in Research and Creative Activities (2013), the FIU Kauffman Professor Award (2009), and the DARPA Young Faculty Award (2008).