Sunday Afternoon, September 21, 2025

Nanoscale Science and Technology Plenary Session
Room 206 A W - Session NSP-SuA

Nanoscale Science and Technology Plenary Session (ALL-INVITED SESSION)

Moderator: Nikolai Klimov, NIST

3:00pm **NSP-SuA-1 Wide Bandgap III-Nitride Nanostructures: Epitaxy, Properties, and Emerging Device Applications***, Zetian Mi,* University of Michigan, Ann Arbor **INVITED**

In this talk, I will present recent advances on the molecular beam epitaxy of (ultra)wide bandgap III-nitride nanostructures and their unique optical, electronic, catalytic, piezoelectric, and ferroelectric properties. I will further discuss their emerging applications in ultraviolet optoelectronics, micro/nanoscale LEDs, high power, high frequency and high temperature electronics, and artificial photosynthesis.

3:30pm **NSP-SuA-3 NSTD Graduate Award Finalists Presentations***,*

4:00pm **NSP-SuA-5 NSTD Early Career Award Finalists Presentations***,*

4:45pm **NSP-SuA-8 The Gas Field Ionization Source - An Overview of the Physics and the Future of this Technology***, John Notte,* Carl Zeiss **INVITED**

Beyond all reasonable expectations, the "pointy end of a needle" has spawned a remarkable collection of technologies, including the world's highest brightness charged particle beam, the gas field ionization source (GFIS). This talk endeavors to provide a complete overview of the physics that enables and limits the performance of the GFIS technology. Additionally, this talk frames a timeline of the GFIS technology from its first realization, to commercialization, and several possible futures.

5:15pm **NSP-SuA-10 Nanoscale Science and Technology Plenary Reception***,*

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