

Joint Session between NPSS and NTC/IEEE

17:15~19:25 (EDT), July 30th 2021, IEEE NANO 2021

“Modern and Emerging Plasma Nanomanufacturing Technologies”

Organizers: Prof. Seiji Samukawa (NTC) and Prof. John P. Verboncoeur (NPSS)

The evolution of nanoscience and nanotechnology has created new opportunities to influence the future through application of technological innovations. Without this evolution, we will face greater deterioration from global warming, exhaustion of natural resources, shortages of food and potable water, and congested cities. To mitigate or even solve these serious global issues in the future, advanced functions created by nanotechnology should be combined with medical, information, and materials science and engineering create integrated nanodevices and nano-systems. To fabricate nanodevices and nano-systems, plasma nanomanufacturing technologies must be utilized through the integration of top-down and bottom-up processes.

This session was arranged to bring together the wisdom of Nuclear & Plasma Sciences Society (NPSS), IEEE and NanoTechnology Council (NTC), IEEE for next-generation plasma nanomanufacturing technologies. Prestigious researchers were invited to introduce the activity of NPSS and NTC, and to discuss their work on atomic layer defect control nano processes for future nanodevices and nano-systems.

(Invited Speakers)

NPSS/IEEE:

1. **Prof. John P. Verboncoeur** (MSU), “Introduction of NPSS, IEEE” (5min)
2. **Prof. Uwe Kortshagen** (UM), “Gas Phase Synthesis of Nanomaterials with Plasma” (20min)
3. **Prof. Tim Grotjohn** (MSU), “Plasma-assisted Diamond Growth with Color Center Incorporation for Quantum Computing and Sensing Application” (20min)

NTC/IEEE:

1. **Prof. Seiji Samukawa** (Tohoku Univ.), “Damage-free Plasma Processing for Nano-devices Manufacturing” (20min)
2. **Dr. Peter Ventzek** (Tokyo Electron USA), “Atomic Precision Device Fabrication Involving Silicon, Silicon Nitride, and Silicon Dioxide using Cyclic Self-limiting Plasma Processes” (20min)
3. **Dr. Xuelun Wang** (AIST), “High-efficiency GaN micro-LEDs Involving InGaN/GaN Nanostructures fabricated by Neutral Beam Etching” (20min)