

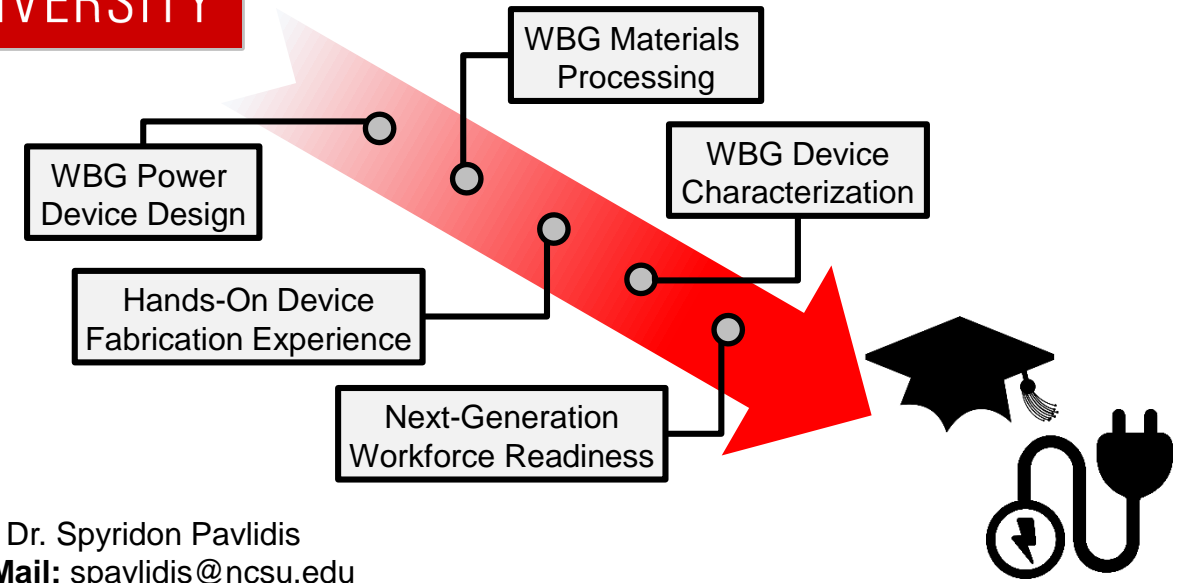
Project Title: Graduate Wide Bandgap Semiconductor Power Device Lab

Objectives: To (1) establish a graduate laboratory course focused entirely on the design, fabrication and characterization of WBG power devices, and (2) disseminate the curriculum amongst PowerAmerica’s members to accelerate the education of new engineers

Major Milestones: (1) syllabus creation, (2) fabrication process for power GaN HEMT, (3) course execution, (4) class evaluation & dissemination

Significant Equipment Acquisition: High-speed oscilloscope with power analysis software and high power probes (Tektronix MDO3054)

Deliverables: (1) transferrable curriculum, (2) power GaN HEMT fabrication flow, (3) video teaching modules for WBG characterization



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Charging new careers!

WBG Technology Impact

1. Best practices for wide bandgap material processing from the literature will be aggregated, organized and made available in a form that is both accessible to students as well as the wider public. It is hoped that this will also push the industry closer to a level of maturity that will enable higher level (e.g., circuit and system) development.
2. By establishing, documenting and ultimately disseminating a model microfabrication process that can be executed within an academic facility, students can begin to receive formal and practical training for future careers with wide bandgap semiconductor-based power electronics.

Additional impacts

1. Student Involvement and Workforce Development: up to 25 graduate students will be involved with the course.
2. Unique hands-on fabrication and experimentation experiences will drive interest in wide bandgap semiconductors, and attract more students to the field.
3. Digital media will be developed that can be proliferated amongst the PowerAmerica community to spur adoption of similar laboratory courses at other universities.