

College of Engineering

Department of Electrical and Computer Engineering
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The logo for North Carolina State University, featuring the text "NC STATE UNIVERSITY" in white, bold, sans-serif capital letters on a red rectangular background.

Call for applications:

North Carolina State University is leading the charge as the recipient of a \$39.4 million award from the Department of Defense to establish the regional Microelectronics Commons innovation hub, **Commercial Leap Ahead for Wide Bandgap Semiconductors (CLAWS)**. This initiative, part of the larger \$238 million investment through the Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act, aims to revolutionize the field of wide bandgap semiconductors.

CLAWS Hub leadership, Distinguished Professors John Muth and Fred Kish, are dedicated to the "lab to fab" journey—translating laboratory advancements into fabrication capabilities for wide bandgap semiconductors. The hub brings together a dynamic partnership with N.C. A&T University and industry leaders, including Wolfspeed, Coherent Corp., General Electric, Bluglass, Adroit Materials, and Kyma Technologies, Inc. This collaborative effort will propel the development of semiconductors crucial for national defense, electric vehicles, power grid technologies, 5G/6G, quantum technologies, and artificial intelligence applications. The hub will develop new Research Development Kits (RDKs), which will provide a modular approach to process blocks and flows to be coupled with hub developments in Electronic Design Automation (EDA) tools.

We are seeking talented individuals who are passionate about shaping the future of technology in five hub segment areas: 1) Silicon Carbide Electronics, 2) III-N RF Electronics, 3) III-N Photonics, 4) III-N Power Electronics, and 5) Ultrawide Bandgap Electronics. If you're ready to be part of a team that is driving technological advancements and securing the nation's future, we invite you to apply for the following opportunities:

1. **Director of Engineering - Research Development Kits (RDK):** Lead and contribute to all aspects of the development of RDKs for the CLAWS hub. The RDK includes the design (including EDA tools), fabrication, testing, and packaging of hub offerings in all five segment areas (listed above). The successful candidate will have significant experience (>5 years) in one or more hub segment areas spanning the breadth of design, fabrication, packaging, and testing. Experience managing complex multi-functional and multi-group development activities is highly desirable.
2. **III-Nitride Electronics Research Development Kits (RDK) Engineer:** Develop the III-Nitride RF and Power Electronics RDKs, including the development of unit processes, integrated processes blocks, and the full-flow spanning design (fabrication, test, and packaging). Act as lead RDK integration and product development engineer across relevant hub segments. The successful candidate will have significant experience (>5 years) in wide-bandgap RF and power electronics.
3. **III-Nitride Photonics Research Development Kits (RDK) Engineer:** Develop the III-N Photonics RDK, including the development of unit processes, integrated processes blocks, and the full-flow spanning design (fabrication, test, and packaging). Act as lead RDK integration and product development engineer across the Photonics hub segment. The successful candidate will have significant experience (>5 years) in wide-bandgap photonics.
4. **CLAWS Hub Packaging Engineer:** Develop all packaging and sub-assembly capability for the CLAWS hub, including the development of unit processes, integrated processes blocks, and the full-flow for sub-assemblies and integrated packagings across all hub segments (listed above). The successful candidate will have significant experience (>5 years) in the realization of packaging solutions.
5. **III-N Wafer Fabrication and Integration Engineer:** Lead the development of integrated process blocks and full-flows for the wafer-fabrication of the research development kits of III-Nitride RF electronics, III-N power electronics, and III-N photonics. The successful candidate will have significant experience (>5 years) in III-N fabrication experience.

6. **CLAWS Hub Electronics Test Engineer (postdoc):** Establish the test capability for the III-N RF and Power Electronics research development kit. The testing capability will include packaged die and sub-assemblies, chips, and wafer-level devices and test structures. Included in this role is the realization of baseline test suite architectures that can be modified to accommodate customized hub offerings as well as linkage of the test data into the electronic design automation solutions. Two years of experience in RF and/or Power Electronics test and characterization is required.
7. **CLAWS Hub Photonics Test Engineer (postdoc):** Establish the test capability for the III-N photonics research development kit. The testing capability will include packaged die and sub-assemblies, chips, and wafer-level devices and test structures. Included in this role is the realization of baseline test suite architectures that can be modified to accommodate customized hub offerings as well as linkage of the test data into the electronic design automation solutions. Two years of experience in photonics test and characterization is required.
8. **CLAWS Hub Lead EDA Engineer:** Lead the establishment of the electronic design automation (EDA) toolkit across the hub. The EDA toolkit is inclusive of the EDA tools themselves, database/cloud storage solutions, as well as manufacturing execution systems (MES) and statistical process control (SPC) solutions. Develop the EDA strategy for solutions, selection of requisite tools, and development of new EDA capabilities (using the tools) to ensure hub requirements are fulfilled. Lead the overall EDA effort for the hub and ensure its successful execution and implementation. The successful candidate will have significant experience (>5 years) in developing EDA solutions.
9. **CLAWS Hub EDA Engineer - Electronics (2 positions):** Develop electronic design automation (EDA) tools for RF and Power Electronics. Responsibilities include the development of custom solutions for the full suite of EDA needs as well as the development and integration of tools and data for manufacturing execution systems (MES), statistical process control (SPC), and device / circuit characterization data. Two years of experience in developing electronic EDA solutions is required.
10. **CLAWS Hub EDA Engineer - Photonics:** Develop electronic design automation (EDA) tools for III-N photonics. Included in this responsibility are the development of custom solutions for the full suite of EDA needs as well as the development and integration of tools and data for manufacturing execution systems (MES), statistical process control (SPC), and device / circuit characterization data. Two years of experience in developing photonic EDA solutions is required.
11. **Fabrication Engineer (4 positions):** Design and develop next-generation wafer fabrication processes and tools, including those for etch, deposition, and lithography. Collaborate with the CLAWS Hub team to develop standardized and optimized unit processes and integrated process blocks tailored to specific hub segment offering. Maintain and troubleshoot processes and tools. Run processes and train users on the tools and processes. Various level positions are available, including those with minimum 2 years of experience and minimum 5 years of experience.
12. **Facilities Engineer:** Responsible for the installation, start-up, and continued operation of various pieces of semiconductor processing equipment. Requires understanding the facilitation needs of the equipment (e.g., power, plumbing, exhaust, CDA, PCW, nitrogen, etc.) as well as the ability to troubleshoot and address issues that arise. Maintain close communication with the tool vendors to gather necessary information to successfully install equipment and ensure its long-term operation. Interface with University facilities and EHS to ensure the tool is installed and operated safely. Work with University facilities, the ECE department, and the College of Engineering to ensure that all building systems (DIW, CDA, N2, air handlers) are operating as intended. Minimum 5 years experience required.

If interested, please send your resume/CV to claws-admin@ncsu.edu with the subject line "Interest in position:" and the position name (e.g., Interest in position: Facilities Engineer).