



Job Title: Physicist/Scientist
Group: Advanced Etch Technology & Diagnostics
Grade: Qualifications dependent
Availability: Immediate

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Applied Materials' Etch Department is seeking an experimental physicist/scientist/RF engineer to join the Advanced Etch Technology and Diagnostics Group. Our team focuses on deep understanding of reactive ion etch (RIE) technology and delivers innovative solutions to meet complex semiconductor processing challenges. We develop new hardware and diagnostic technologies — including novel biasing schemes and plasma sources, optical and electrical diagnostics, wide-band filters — and support process and hardware development for capacitively and inductively coupled plasma chambers. A candidate is expected to have hands-on and data analysis skills, with emphasis on E&M and electronic circuits (oscilloscopes, function generators, network analyzers, components, PCB routing, soldering), low-temperature plasma physics and diagnostics (sheath, capacitively and inductively coupled discharges, Langmuir probes and optical diagnostics), as well as thermal and mechanical stress analysis (optional). Programming skills using Python, Octave, LabView will be an advantage. PhD is a requirement, with few to several years of work experience being a strong preference. There is a range of grades and salaries that are available depending on the candidate's experience. Preference will be given to those with theoretical and hands-on experience in plasma physics, RF engineering, electronics, measurements.

Key Responsibilities:

- Execute R&D projects involving RF power delivery, plasma processing, vacuum-related hardware
- Lead cross-functional teams or peers in resolving customer escalations, developing new technologies
- Design and develop high-voltage / high-frequency electrical circuits for plasma chamber biasing and advanced etch applications
- Design and develop high-precision measurement systems for RF and pulsed high-voltage signals
- Build prototype hardware including circuits, employing soldering and machining skills
- Perform detailed electrical measurements using: oscilloscopes, power supplies, function generators, additional RF/electrical test equipment, in-situ voltage sensors (including in plasma)
- Develop algorithms and perform scientific computing in Python, MATLAB, or equivalent languages
- Calibrate and operate optical diagnostics, including laser-based systems (optional)
- Support development, execution, and analysis of plasma diagnostic techniques, such as: Langmuir probes, retarding field energy analyzers (RFEA)
- Gather experimental data, perform quantitative analysis, communicate results to the technical team

Required Qualifications:

- PhD in: Plasma Physics, RF Engineering, Electrical Engineering, Applied Physics or Physics
- Strong graduate-level understanding of electromagnetism, electronic circuits, plasma physics
- Multiple years of hands-on experience with: R&D and engineering laboratory work, oscilloscopes, laboratory electrical measurements
- Proficiency in Python, MATLAB, or other scientific programming languages
- Soldering and basic machining skills
- Self-motivated, quick learner, and able to work effectively in a team environment

Preferred Qualifications:

- Theoretical and hands-on expertise with low-temperature plasma systems and diagnostics (Langmuir probes, RFEA, spectroscopy)
- Hands-on experience with RF power delivery and measurements
- Knowledge and experience with vacuum systems, mechanical engineering related to vacuum technology
- Strong verbal communication skills and the ability to present technical data clearly
- Experience in electronic circuit design and hardware development