

Modern Electron is looking for R&D Scientist – Electron Beam

We are a start up in Seattle dedicated to generating cheap, distributed, and reliable electricity for all. Expensive mechanical engines and turbines based on 19th-century technology are still used to generate >80% of today's electricity worldwide. Modern Electron seeks to revolutionize the industry with direct heat-to-electricity generators. >\$10 MM venture capital is committed to our vision. We do novel work at the intersection of nanofabrication, material science, thermal engineering, and vacuum science.

Visit us at <http://modernelectron.com/join-us/> to find out more.

A highly-qualified scientist is needed to work on the product R&D team, and will be responsible for innovation, testing, and production of vacuum microelectronics & nanoelectronic devices using the company's cutting edge technology and processes. Particular focus will be on designing, simulating, and testing nanoscale and microscale vacuum electronic components and electron beam systems.

Modern Electron has an immediate opening for a R&D Scientist. A highly-qualified scientist is needed to work on the product R&D team, and will be responsible for innovation, testing, and production of vacuum microelectronics & nanoelectronic devices using the company's cutting edge technology and processes. Particular focus will be on designing, simulating, and testing nanoscale and microscale vacuum electronic components and electron beam systems. The successful candidate will work with a team of physicists, chemists, material scientists, electrical engineers, and technicians. This position will report to the CTO.

Modern Electron is a start-up company dedicated to generating cheap, modular, and reliable electricity for all. Expensive mechanical engines and turbines based on 19th-century technology still generate the majority of the power used worldwide. We seek to replace them with paper thin heat-to-electricity generators. >\$10MM venture capital is committed to our vision. We have enormous potential for learning, impact, and growth in a small and collaborative team setting. We value our ability to move fast to outpace larger companies and achieve what they cannot.

ESSENTIAL SKILLS, KNOWLEDGE, AND ABILITIES:

- Experience setting up complex physical measurements for nanoelectronics or microelectronics and interpreting data.
- Deep understanding of the physics of low energy charged particle systems (electron beam and/or ion beam optics) and electron/solid interactions.
- Experience operating and physical understanding of low energy charged particle beam systems, such as diffraction, imaging, and/or spectroscopy systems (e.g. low energy electron diffraction (LEED), low energy ion scattering (LEIS), Auger electron spectroscopy, helium ion microscope, low-energy electron microscopy (LEEM), photoemission electron microscopy (PEEM/PEM), work function measurements, etc.)
- Extensive expertise and experience with design, purchase, assembly, and integration of high vacuum and ultra-high vacuum equipment, and improvements/maintenance of these systems
- Basic programming for data acquisition for scientific instrumentation (LabView, Matlab, etc.) and/or data analysis and visualization (Matlab, Python, etc.)

DESIRED SKILLS & EXPERIENCE:

- Experience with commercial vacuum electronic devices, e.g. field emission tips, klystrons, gyrotrons, traveling wave tubes and/or photocathodes
- Experience with R&D in field emission and thermionic emission

- Experience with R&D in thermionic energy conversion
- Experience with low work function and/or cathode materials (e.g. Cs, Ba, LaB6, CeB6, impregnated tungsten, scandate, multi-alkali, etc.)
- Familiarity with MEMS/NEMS, nano- or microfabrication, and/or other nano-/microelectronics

MINIMUM QUALIFICATIONS:

- Ph.D. or equivalent in Physics, Electrical Engineering, Applied Physics, Physical Chemistry, or related field. Demonstrated experience setting up complex physical measurements and interpreting data.

We are an equal opportunity employer