

MODERN ELECTRON MATERIALS ENGINEER – LOW WORK FUNCTION

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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. Venture capital funding is committed to our vision. We're at the early stage of commercialization, with 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 with thermionic cathodes, e.g. tungsten cathodes, oxide-coated cathodes, dispenser cathodes, lanthanum or cesium hexaboride cathodes
- Experience and knowledge with the surface chemistry, materials preparation, and physics of low work function and/or cathode materials (e.g. Cs, Ba, LaB₆, CeB₆, impregnated tungsten, scandate, multi-alkali, 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
- Programming skills for control systems and data acquisition systems for scientific instrumentation (LabView, Matlab)

DESIRED SKILLS AND 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 wafer scale vacuum encapsulation of MEMS/NEMS and other nano-/microelectronics

MINIMUM QUALIFICATIONS:

- B.S. in Physics, Electrical Engineering, Chemistry, Materials Science, or related field. Demonstrated experience with vacuum electronics.

PREFERRED QUALIFICATIONS:

- At least 6 years of post-bachelor (Ph.D. + work) experience with vacuum electronics and low work function materials.

We are an equal opportunity employer