

## **Modern Electron is looking for Thermal & Mechanical Engineer**

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.

Modern Electron has an immediate opening for a thermal and mechanical engineer with experience in high temperature thermal management for nano- or microscale devices. The engineer will be responsible for every step in the lifecycle of our high temperature (>700°C) thermal management solutions, including conception/design, fabrication, and validation, followed by iteration and ultimately positioning designs for manufacturing. The successful candidate will work with a team of engineers, physicists, chemists, material scientists, and technicians.

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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. >\$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:**

- Deep knowledge of state-of-the-art thermal management and thermal isolation strategies for high temperature (>700°C) devices at the microscale.
- Analysis and modeling of material mechanics, heat transfer, and thermo-mechanical stress management in microscale devices at temperatures above 700°C using ANSYS, Star-CCM+, SINDA/FLUINT, Thermal Desktop, or similar finite element analysis (FEA), computational fluid dynamics (CFD), & Multiphysics suites for design of thermal management strategies.
- Experience fabricating and experimentally validating thermo-mechanical management solutions (e.g. thermal imaging, distributed thermocouple measurements, thermal conductivity measurements of microscale materials, etc.).
- Mechanical design with SolidWorks or other 3D CAD software.
- Demonstrated experience selecting, processing, fabricating, designing, and assembling refractory/high-temperature (>700°C) ceramics and metals.
- Experience with the following is also beneficial:
  - Hands-on expertise with fabricating prototypes for test machining, CNC, welding, brazing, soldering, forming, etc. Experience with the following is also beneficial:
  - Micro/nanofabrication

- High temperature devices and heat engines such as thermoelectric generators, thermionic converters or other hot cathode vacuum electronics, solid oxide fuel cells (SOFCs), high temperature capacitors, and/or high temperature sensors (e.g. accelerometers)
- Design and integration of combustors and heat exchangers
- Vacuum encapsulation/packaging of devices

**MINIMUM QUALIFICATIONS:**

- At least 6 years of post-bachelor (Ph.D. + work) experience with design, fabrication, and test of microscale thermal management solutions.

We are an equal opportunity employer.