

SR. CRYOGENIC THERMAL ENGINEER/PHYSICIST

Boston Area, MA

Giving everyone in the world access to clean, reliable, affordable energy will require substantial expansion of global electricity transmission networks. VEIR is developing a new generation of High Temperature Superconductor (HTS)-based transmission lines, enabling long distance, reliable, low loss, cost-effective power transfer in far smaller right-of-ways. VEIR's innovations overcome the main barriers to transmission expansion, enabling the world to access the very lowest cost renewable power.

The **Sr. Cryogenic Thermal Engineer/Physicist** will be responsible for building the team to research, design, develop and test VEIR's cryogenic thermal management subsystems (including all components responsible for heat exchange).

DUTIES & RESPONSIBILITIES:

- Lead the development and utilization of engineering analysis, models, and simulation tools to improve the performance, reliability, lifetime, and cost of VEIR cryogenic thermal management subsystems and associated components
- Lead the iterative design, build, and experimental testing of VEIR cryogenic subsystem and component prototypes
- Lead the review, interpretation, and visualization of experimental data on cryogenic subsystems; use data to validate and improve thermal models and strategically plan subsequent prototype design iterations and experimental campaigns
- Supervise a small team of engineers and technicians (2-3 direct reports initially); help build team
- Collaborate with broader VEIR team to integrate thermal system designs with broader VEIR engineering and product development efforts, including electrical system designs
- Identify, evaluate, negotiate, and liaise with subcomponent suppliers, academic collaborators, external consultants
- Participate in documenting innovations and filing patent applications for key VEIR technology

MINIMUM EDUCATION/EXPERIENCE:

- MS Mech Eng or Applied Physics + 3 years, or equivalent experience (including significant laboratory research experience)
- Strong background in the disciplines of cryogenic heat transfer and thermal engineering
- Demonstrated creativity and experience in cryo-thermal engineering design and analysis
- Strong experimental background with experience integrating high accuracy sensors and data collection systems
- Specialized technical experience applicable to the position includes:
 - Experience in heat transfer, thermodynamics, thermal sciences, thermal engineering, and two-phase thermophysics
 - Hands-on experience using interdisciplinary engineering analysis tools (eg. ANSYS, Fluent, MATLAB, etc.)
 - Experience conducting thermal model analysis and correlating experimental results to model predictions

PREFERRED EDUCATION/EXPERIENCE:

- PhD in mechanical engineering or applied physics or closely related field with emphasis in heat transfer or thermal sciences with at least 5 years thermal engineering experience, to include post-doctoral education
- Extensive experience designing and testing cryogenic thermal management systems

REQUIRED SKILLS:

- Ability to build and maintain detailed understanding of VEIR technology including design specifications and constraints
- Ability to specify, select, and/or design cryogenic hardware including vacuum jacketed pipes, thermal insulation materials, heat exchangers, pumps, temperature sensors, and/or pressure sensors
- Ability to create new system designs and/or improve existing system designs with a focus on achieving increased thermal performance, improved reliability, reduced cost, and/or improved manufacturability
- Strong verbal and written communication skills; Ability to clearly communicate goals, findings, and issues
- Ability to build and manage high performance teams
- Ability to work in a fast-paced, team-oriented environment
- Ability to work with minimal supervision; self-motivated and directed

PREFERRED SKILLS:

- Ability to use CAD software tools for 3D Modeling (SolidWorks)
- Ability to use laboratory automation and data collection systems (e.g. LabView)

ADDITIONAL NOTES:

- Working conditions: Laboratory environment, periodic work in outdoor environments (LN bulk supply, pilot demonstrations)