

Battery Engineer/Battery Designer - Senior Pouch Cell Designer

Paraclete Energy, Inc. – Chelsea, MI

Job Description

Engineer/battery designer/battery scientist

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Paraclete Energy Inc.

Employment Opportunity: Battery Engineer/Battery Designer

Company Overview

Paraclete Energy, Inc. located outside of Ann Arbor Michigan in the city of Chelsea, Michigan is establishing itself as the leading supplier of high capacity anode materials with its nanoparticle SM-Silicon™ family of products to the fast-growing Lithium-Ion battery industry. Paraclete's nanoparticle silicon is the standard silicon for the Department of Energy's National Lab's Next Generation Anode materials. Paraclete in the coming months is scaling its research and production facilities. This expansion has created a need for a variety of core skills and opportunities for multiple Electrochemists and Material and Battery scientists and engineers.

Paraclete offers a very attractive pay and benefits package along with bonuses and stock-based compensation with liberal vacation and holidays off per year.

The Position

The focus of this role is on battery design, optimization, and pouch cell building and not on fundamental science and material research.

Paraclete is seeking senior battery engineers to design, develop, and build lithium-ion batteries in the form of coin and pouch cells, as well as electrochemical testing for lithium-ion battery electrodes and cells that contain silicon. The ideal candidate is expected to demonstrate the ability to formulate and then to make silicon-based anode slurries and then build half and full coin cells and pouch cells with a variety of cathodes. The ideal candidate is expected to have experience in designing, optimizing, and building pouch cells and conducting electrochemical tests and analysis for measuring lithium-ion battery performance, preferably that contain silicon. The candidate must have a positive attitude, passion, and be a team player and able to work with others.

This person is expected to collaborate with other material scientists in the team to manage the design process from small scale material validation at the coin cell level to multi-stack pouch cells with the same high gravimetric capacity and energy density. This person will design and optimize pouch cell components including type of cathode, electrolyte, separator in addition to anode design. This important position will, along, with others in the Paraclete laboratory perform electrochemical and chemical characterizations for lithium-ion battery materials to support enhanced anode materials development goals. This role will involve developing a detailed understanding of the relationships between material properties, cell design, and electrochemical and other performance parameters for high energy density, cycle stable battery characteristics. This role will include working with other

members of the Paraclete team to discuss, brainstorm, and strategize the next steps towards improved product development.

Duties and Responsibilities

- Designing and building of pouch cells and coin cells
- Electrode slurry formulations, mixing, and coating
- Provide engineering analysis for the impact of different components in the pouch cell on the overall performance of the cell
- Operating equipment for laboratory testing including electrochemical analyzers
- Prepare electrochemical reports, communicate results in an effective way
- Laboratory management including equipment management, tools and chemicals inventory
- Work with external prospects and customers to define, develop, and exceed specifications.

Desired Experience

- 2-5 years of relevant designing pouch cells experience (experience during M.S. or Ph.D. research will also be considered)
- 2 – 5 years' experience working in the glovebox, ideally building pouch and coin cells for Li Ion batteries containing silicon
- Experience in solving open-ended engineering problems
- Knowledge of electrochemistry fundamentals, such as ions diffusivity, charge transfer kinetics, and cell balance
- Analyzing operating Electrochemical conditions and functions of battery cell formation equipment and process to scale up the coin cell performance to multi-layer and multi-stack pouch cell design with high gravimetric capacity, energy density, cycle stability and faster charge
- Knowledge of material design and to achieve faster charging and rate capability
- Experience in dealing with nanopowders and making slurries for batteries
- Experience working with battery analyzers
- Experience with silicon and overcoming the issues of working with silicon in Li-ion batteries are preferred, but not the only consideration.
- Knowledge and preferably hands-on experience in multiple characterization techniques, XRD, SEM, TEM, and XPS (training can be provided)

Qualifications

- Must have a positive attitude, passion, and teamwork skills
- Excellent communication skills including technical writing, presentations, and interpersonal interaction
- Ph.D. or M.S. degree in Chemical Engineering, Nanotechnology or Materials Science, or related field. B.Sc. can apply if have the relevant work experience and passion to learn new skills
- Background in chemical engineering/physics, prefer electrochemistry
- Ability to think creatively and analytically.
- Strong verbal and written communication.
- Excellent cross-functional and teamwork skills.

Job Type: Full-time

Application Questions

You have requested that Indeed ask candidates the following questions:

- How many years of pouch cell design experience do you have?
- How many years of battery analyzer experience do you have?
- How many years of nanopowders and making slurries for batteries experience do you have?
- How many years of experience do you have working with silicon as the anode active material?
- How many years of Working in glovebox experience do you have?
- What is the highest level of education you have completed?
- Are you authorized to work in the following country: United States?