

Job Description

Job Title: Battery Modelling Scientist
Reporting to: Engineering and Informatics Technical Director
Reports: N/A

Company description

Ilika (www.ilika.com) is a pioneer in solid state batteries. The company has developed miniature micro-fabricated solid-state batteries (Stereax) for Internet of Things (IoT) applications and is now developing large format solid-state cells for electric vehicles.

Ilika is a publicly listed company with its head office in Romsey and a facility at the University of Southampton. In 2021 Ilika is establishing a new facility for the scale up and manufacture of Stereax solid state batteries. We offer the successful candidate a competitive package and the opportunity to be part of a world class technical team using state of the art equipment in a supportive environment. This is an excellent opportunity to join the team during a period of growth, and to make a meaningful contribution during this exciting transition.

Overview of the role

The individual will work in Ilika's scientific team on the application and further development of computational models useful for the development and manufacture of Ilika's solid state batteries. The individual will work across Ilika's battery development teams.

Responsibilities may include but are not limited to:

- Recognise the importance of and create an inspirational can-do culture in the organisation, with a focus on process improvement, adding value to the business;
- Taking the initiative in proposing and implementing solutions for areas for improvement in the Company's operations;
- Maintaining ISO standards;
- Development of computational models of Solid State Batteries including but not limited to:
 - Electrochemical cell balancing and parameterisation;
 - Electrochemical models encompassing diffusion and phase changes as a function of state of charge;
 - Thermal and structural models of the cells (thin film and composite materials structures) showing the development of stresses and temperature gradients under cycling;
 - Electronic performance of the cells and creation of partner models that enable circuit design with Ilika's cells;
 - Battery pack level modelling of both electrochemical and physical properties;
- Assist the product architects in the design of new cells through developing models to indicate potential performance impacts of design changes;
- Assist the Business Development and Marketing teams with answering theoretical questions as to the performance of cells;
- Take an active role in providing analysis through models to aid fault-finding and root cause analysis;

- Adhere to good laboratory practice and implementation of risk assessments and COSHH where appropriate;
- Support Stereax/Goliath products through to Launch / R&D design freeze;
- Maintain an understanding of Stereax/Goliath battery architectures, materials and fabrication steps to enable product development and model developments; structure etc;
- Carry out a wide range of duties according to documented procedures without close supervision;
- Support the protection of intellectual property.

Job requirements:

- A masters level (or higher) degree in Chemistry, Chemical Engineering, Physics or other related subject or equivalent industrial experience in developing models of electrochemical systems;
- Expertise in COMSOL model development or equivalent with specific focus on battery or fuel cell electrochemical development;
- Understanding of battery electrochemistry, battery performance parameters and how producing realistic models of such devices can drive product improvement and manufacture with emphasis on solid state batteries;
- Understanding of composite materials and how their make-up can affect properties such as percolation, defects and thermal expansion;
- Ability to work independently on COMSOL or equivalent finite element models abiding by Ilika's coding best practice;
- Experience with Ilika's data handling and analysis procedures to enable the development of data driven models;
- Good attention to detail, clear communication skills, self-motivated and proactive;
- Ability to write well defined operating procedures in compliance with ISO standards;
- Demonstrated ability to work both independently and collaborate within a team.

Applicant must be eligible to work in the UK.

Ilika is an equal opportunities employer and positively encourages applications from suitably qualified and eligible candidates regardless of sex, race, disability, age, sexual orientation, gender reassignment, religion or belief, marital status, or pregnancy and maternity.

Contact: careers@ilika.com