

# Semiconductor Device & Applications Engineer (Job Ref: SDAE)

## About the Company

Porotech Ltd (Porotech), the Gallium Nitride (GaN) material technology developer and spin-out from the University of Cambridge, focuses on the development of high performance and energy efficient wide-bandgap compound GaN semiconductors by applying cutting-edge material technologies and solutions to unleash the full potential of GaN to revolutionise the electronics industry.

Porotech's unique production process allows the controlled creation of a new class of nanostructured GaN semiconductor materials providing new opportunities for device engineering. We can control the process to vary the GaN nanostructures and hence engineer a wide range of material properties, such as optical, mechanical, thermal and electrical, and consequently offering an entirely new material platform for semiconductor devices to be built upon.

GaN is the silicon of the future, as it has many more interesting properties, including energy efficiency, than any other semiconductor materials. GaN-based LEDs can save 10% of entire world's electricity consumption. GaN-based transistors can operate 100 times faster than those in silicon whilst consuming 10 times less power.

Porotech's unique and world leading material technologies and device solutions will deliver multifunctional GaN semiconductor wafers with material properties and functionalities tailored and targeted to high impact final device applications. GaN has enormous potential in energy efficient lighting and power management, as well as lasers, quantum light sources, sensors, and energy generation, and our new material technologies will help make that potential a reality.

## About the role

We are looking for a Semiconductor Device and Applications Engineer for materials and device structure design & modelling, device fabrication and testing. This role will provide skills and hands-on experience and will be expected to support the R&D activity and report to the VP Product Development, CTO and CEO. The role will be based in Cambridge, UK, with national and international travel. If you have this mindset and believe you could bring your unique skills and ideas to the company, we'd love to meet you and find out if our challenge is just as exciting to you as it is to us.

We are seeking individuals who can:

- Complete knowledge and hands-on experience in design, model, fabricate and test of compound semiconductor materials and devices
- Manage individual projects and deliver the device demos and prototypes defined by the company's technology and product roadmap

- Work closely and support the VP Product and Development and CTO to develop future material and device technologies
- Work with external academic and industrial partners and customers
- Publish scientific papers and attend conferences
- Travel to project partner or customer's site
- Outcome focused and report to all levels of the business

#### **Experience & Skills & Qualifications:**

- Excellent understanding of semiconductor materials and fabrication technologies
- Demonstratable experience of successfully developing new products and processes of optoelectronic devices
- Hands-on cleanroom experience with equipment such as photo- and e-beam lithography, nanoimprint, e-beam and thermal deposition, RIE and ICP dry etching
- Capability to design and develop novel semiconductor devices from the base material
- Experience of carrying proof of concept technologies through to prototype level
- Very flexible approach to project delivery
- A capability to grasp new scientific concepts and technologies quickly
- An exceptional team player with strong interpersonal skills
- Excellent presentation and communication skills
- Qualification to PhD level in relevant subject: semiconductor physics, materials chemistry, materials science or electrical engineering, or degree paired with suitable experience

#### **Advantageous skills:**

- Experience of III-nitride semiconductors or other compound semiconductor material and device development
- Background in materials characterisation and testing techniques, such as Raman spectroscopy, AFM, Hall, PL, SEM, XRD, XPS, etc
- Experience in solid state device design and CAD capabilities
- Experience in CMSOL, FDTD and Lumerical modelling capabilities

#### **Summary:**

At Porotech, we would like you to enjoy the success of the company to emerge from the UK and lead the world's III-nitride semiconductor development, which you will be helping to build and be part of. It is an ideal time to join with a business with unique technology and products that are ready to be delivered and going to change the market.

Competitive salary dependent on experience. The ideal candidate will benefit from a generous company share option program. If you are interested in helping us change the world, send your CV with a cover letter to [info@porotech.co.uk](mailto:info@porotech.co.uk). We look forward to making your acquaintance.