

### International collaboration delivers positive results



Wafers being ‘handled’ in IQE’s clean-room during post-production testing

IQE, headquartered in Cardiff, is a global business that manufactures and supplies wafer products to the semiconductor industry. Its products enable a range of high-tech applications, including wireless and optical communications (smart phones, and the internet), photonic sensors and photovoltaics (solar panels).

IQE successfully applied for an enhanced Knowledge Transfer Partnership (KTP) to develop in-house expertise and processes that would test and improve the quality of one of their products. The experience was extremely positive and helped to identify improvements in some key manufacturing processes.

The KTP Scheme is led by **Innovate UK** and funded by 13 government organisations, including the Welsh Government. It enables businesses to innovate and grow by linking them with a university and a graduate to work on a specific project for up to 36 months.

The “enhanced” KTP is unique to Wales and includes an international element; helping Welsh businesses become more competitive by identifying and exploiting unique knowledge and technology from overseas. This enhanced KTP delivered long-term

#### **The Business** **Key Achievements:**

- Developed enhanced manufacturing and testing procedures
- Improved communications with clients
- Expanded existing JV with Cardiff University

benefits, not only for the company but also for German graduate physicist, Alex Pooth, and Bristol University. Three years later, all three are still reaping the benefits of the collaboration.

## The Business

IQE was keen to access state-of-the-art analysis of its 'gallium nitride' material, which is used in power control applications.

The company partnered with Bristol University's physics department and recruited Alex Pooth on a three-year placement to enhance its materials characterisation capabilities, particularly in measurement techniques not available in-house.

The project saw the development of new testing procedures, identified new equipment and enhanced communication with clients. It also added capabilities to an existing joint venture between IQE and Cardiff University that could have wide-reaching benefits for the Welsh economy.

## Three Years Later...

"Our manufacturing processes have improved and will continue to do so, thanks to the research and expertise gained. We better understand key requirements and new testing procedures. Alex's research, reports and presentations have helped us deliver additional value to the services we offer our customers.

"The enhanced element, mainly the opportunity to collaborate with and learn from experts worldwide, was invaluable. We are proud to be learning and bringing that knowledge back to Wales.

"Through this KTP, we also built on our existing relationship with Cardiff University, which aims to turn compound semiconductor research into products and services that benefit the economy in Wales and further afield.

"About two years after Alex joined us, we began another KTP with Cardiff University, linked more to our mainstream product line. That's testament to how much we value what the experience has brought our business."

**Dr Iwan Davies, group technology director at IQE, and Dr Trevor Martin, director of global GaN strategy, IQE**

## The Academic Partner

Bristol University's School of Physics worked with IQE to secure enhanced KTP funding and find an appropriately-qualified associate who could hit the ground running.

Alex and the team at Bristol also engaged Chalmers University of Technology in Sweden, one of Europe's leading technology research facilities, and attended conferences in the United States where they shared experience and learnings.

## The Academic Partner Key Achievements:

- Developed new industry and research links
- Engaged in regular knowledge transfer
- Enhanced the student experience

The project informed study topics, inspired research papers that enriched the faculty's understanding, and gave other students valuable insight into the technology industry.

### Three Years Later...

"This was a fantastic opportunity to gain and share knowledge with an exciting company and we will undoubtedly work with IQE again. It motivates not only the associate but also the other students they integrate with, and provides valuable insight into how what they are studying benefits a working company.

"If you're on a KTP you're much more involved with both the university and the company, moving frequently between the two and ensuring regular knowledge transfer. There is no doubt that everyone benefits."

**Professor Michael Uren and Professor Martin Kuball,  
Bristol University's School of Physics**

### The Associate

When German physics postgraduate, Alex Pooth, heard about the enhanced KTP opportunity at IQE in south Wales he didn't hesitate to apply. The ability to combine university, and working towards a doctorate, with industry experience in an English-speaking country was hugely appealing. The university ensured he was fully integrated with a group of students, so not only did his hard work and research boost IQE's expertise and processes, but he also honed his English skills, worked towards a PhD, and made life-long friends.

### Three Years Later...

"I had the best of both worlds, being at university and extending my science career while gaining work experience in a global company. I definitely matured as a scientist – with two journal publications and several conference contributions during the KTP as a result – and I gained insight into the different perspectives and priorities industry presents.

"I felt part of the team at IQE. I am now looking for work in Germany and feel fortunate I can say I have experience working with a company in an international, English-speaking environment."

**Alex Pooth, physics graduate and former KTP associate  
at IQE**

### The Associate Key Achievements:

- Completed a stimulating academic programme
- Gained valuable industry experience
- Published research and conference papers

To find out more about KTP funding in Wales | 03000 6 03000  
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