

# Experimental Quantum/Vacuum Physicist (KTP Associate)

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|----------------|--|----------------|---------------------------|
| Department     | Physics ( <a href="http://www.strath.ac.uk/physics/">www.strath.ac.uk/physics/</a> ) in Association with TMD Technologies Ltd ( <a href="http://www.tmd.co.uk">www.tmd.co.uk</a> ) |                |                           |
| Faculty        | Faculty of Science ( <a href="http://www.strath.ac.uk/science/">www.strath.ac.uk/science/</a> )  |                |                           |
| Staff Category | Knowledge Exchange   | Reference No   | I50910                    |
| Reports To     | Dr Susan Spesyvtseva (University) and Dr Edward Boughton (Company)   | Grade          | RS79                      |
| Salary Range:  | £34-£40.9k p.a. depending on experience, plus £5k personal development budget  | Contract Type: | Fixed Term (30 months)    |
| FTE:           | 1  | Closing Date   | Sunday, 30 September 2018 |

## Job Advert

The University of Strathclyde, in association with TMD Technologies Ltd., seeks to appoint an experimental quantum/vacuum physicist to drive the translation of a novel, miniature, and self-contained atom-cooling platform for precision measurements.

The Experimental Quantum Optics Group within the Department of Physics at the University of Strathclyde (which, based on the REF 2014 GPA Scores, Times Higher Education ranked as number one in the UK for physics research) specialise in the development and translation of quantum technology. The main focus of the group is the translation of lab-based cold atom and precision measurement techniques into practical applications. Building on an established collaborative relationship with TMD Technologies Ltd., we seek to appoint a skilled, motivated and innovative physicist to lead the development of a miniaturised and integrated Magneto-Optical Trap (MOT) and embed relevant knowledge within the company's production environments.

TMD Technologies Ltd. is an award-winning, world-leading provider of technologically advanced equipment who specialise in innovative, custom solutions for some of the most challenging applications in industry.

The successful candidate will work closely with the support and guidance of Dr Edward Boughton (TMD Technologies Ltd.), as well as with the academic team, Dr Susan Spesyvtseva and Prof Erling Riis, at the University of Strathclyde.

To be considered for the role, you will be educated to a minimum of MSc level in Physics, Engineering or an appropriate discipline or have significant relevant experience in addition to a relevant degree. A relevant PhD qualification or equivalent professional experience is an advantage. You will have extensive experience of experimental lasers and/or quantum physics research with experience in vacuum technology and sufficient depth of knowledge to take a leading role in the technical development of this technology. Experience of cold atom research would be a considerable advantage. You may have experience of working in/with industry and will be passionate about the translation of technology to the industrial sector.

You will be able to plan and manage your own workload while working effectively within a highly multidisciplinary team environment. As a KTP Associate working under the general guidance of an academic research leader, you will have the ability to play a leading role in the delivery and development of this exciting project and report to both academic and company stakeholders in the partnership for further dissemination of findings. You will have excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

The position includes extensive professional development opportunities and generous personal development and travel budgets. With the support of academic experts and a KTP Adviser, this is an excellent opportunity to establish a career in industry at the forefront of innovation in quantum technologies.

The successful applicant will be predominantly based within the company, TMD Technologies Ltd., headquarters in Hayes, West London, though will be required to spend several extended periods accessing state-of-the-art equipment at the

Quantum Optics Laboratories at the University of Strathclyde in Glasgow. The successful candidate will be required to undergo security clearance due to restrictions at the company.

Following this 30-months fixed term appointment, TMD Technologies Ltd. sees substantial potential for the successful candidate to progress to a permanent post within the company.

## Job Description

### Brief Outline of Job:

Under the general guidance and support of Dr Edward Boughton (TMD Technologies Ltd.), and Dr Susan Spesytyseva and Prof Erling Riis (University of Strathclyde), the Associate will lead the development of a miniaturised and integrated Magneto-Optical Trap (MOT) device. The Associate will be required to implement innovative approaches to address technical challenges central to integrating the optical, magnetic and vacuum functionalities of the device and develop techniques for device validation. The Associate will play a key role in the integration of the device within the company's production environments.

### Main Activities/Responsibilities:

|     |   |
|-----|---|
| 1.  | Technical R&D of integrated MOT device for development and validation of prototype  |
| 2.  | Development of techniques for testing and validation of MOT performance   |
| 3.  | Collection and analysis of experimental data for device validation  |
| 4.  | Embedding new knowledge and techniques into company structures by providing training and support  |
| 5.  | Analysis of the market sector and commercial opportunity to inform strategic business case  |
| 6.  | Reporting to and engaging with senior management within TMD Technologies Ltd. to inform strategic decision making   |
| 7.  | Reporting to academic team for dissemination of scientific results  |
| 8.  | Producing milestone reports and presenting work at project review meetings  |
| 9.  | Plan and manage own workload, with guidance from colleagues as required, ensuring deliverables are met and clear reporting is available   |
| 10. | Engaging in continuous professional development (CPD), including developing and maintaining an up-to-date knowledge of the state-of-the-art in quantum technologies, and developing the business skills necessary for successful industry adoption of the product |
| 11. | Completion of KTP Final Report  |
| 12. | Involvement in dissemination activities including trade publications, case studies, academic papers and external presentations at conferences and trade shows   |

## Person Specification

### Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good Honours degree in Physics, Engineering, or related discipline.

E2 MSc or equivalent qualification in a relevant discipline.

D1 PhD qualification in a relevant discipline.

### Experience

E3 Substantial experience of experimental physics.

E4 Previous experience of working with lasers, including the design and construction of optical systems.

D2 Experience of writing academic papers and presenting research at conferences.

D3 Experience of working with vacuum system and/or atom trapping/cooling experiments.

D4 Experience of industry R&D.

D5 Experience of project management.

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## Job Related Skills and Achievements

E5 Excellent practical laboratory skills, including strong skills in the design and alignment of optical systems.

E6 Excellent numerical and computational skills, including strong skills in data analysis.

D6 Ability to programme in LabVIEW or similar.

## Personal Attributes

E7 Highly motivated individual who is able to work independently or as part of a team.

D7 Desire to learn and lead the commercial aspects of the project.

D8 Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

D9 Highly-organised and able to plan and manage their workload and that of others.

D10 Ability to work under pressure and to commercial deadlines.

## Other Relevant Factors

E8 Due to security clearance requirements at the place of work, UK Nationality is essential.

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## Application Procedure

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Applicants are required to complete an application form including the name of three referees who will be contacted before interview without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

## Other Information

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Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforum>).

This position forms part of the Knowledge Transfer Partnership (KTP) funded by Innovate UK. To find out how KTP works with business and the University, and the vital role you will play if you successfully secure a KTP Associate position, please visit: [www.ktpws.org.uk](http://www.ktpws.org.uk)

Informal enquiries about the post can be directed to Dr Susan Spesytyseva, (0141 548 3432 / [susan.spesytyseva@strath.ac.uk](mailto:susan.spesytyseva@strath.ac.uk)).

### Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found [here](#).

### Conditions of Employment

Conditions of employment relating to the KTP staff category can be found at: [Conditions of Employment](#).

### Probation

Where applicable, the successful applicant will be required to serve a 6 month probationary period.

### Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

### Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

### Interviews

Formal interviews will be held in October 2018.

### Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

