



1 Advertisement

Post Title: Professor of Quantum Optics and Technology

School/department: School of Mathematics and Physical Sciences

Hours: full time

Requests for flexible working options will be considered (subject to business need).

Contract: permanent

Reference: C177

Salary: Competitive

Placed on: 25 November 2022

Closing date: 07 April 2023. Applications must be received by midnight of the closing date.

Expected Interview date: 26 April 2023.

Expected start date: June 2023 or as soon as possible thereafter

The [School of Mathematical and Physical Sciences](#) at the University of Sussex and the [Sussex Centre for Quantum Technologies](#) (SCQT), seek to appoint a Professor in experimental quantum technology, including quantum information processing, quantum sensing and applied quantum technology or related areas.

The SCQT is a leading, international centre for quantum research and the development of novel technologies, excelling in both theoretical and applied approaches. Our activities are expansive and include investigations into the foundations of quantum mechanics, applied research, technology development and the transition to commercialisation.

Our quantum research community currently comprises of 9 academic staff, more than 15 research staff and about 33 postgraduate, primarily based in the [Department of Physics and Astronomy](#), which tied 7th in the UK for Physics research environment in [REF2021](#). We are also closely involved with the [UK National Quantum Technologies Programme](#).

We are looking for applicants with an exceptional track record in research that complements and shows synergy with our current activities.

We'd particularly welcome applications from candidates who:

- Have an exceptional track record in experimental quantum technology, including quantum information processing, quantum sensing and applied quantum technology or related areas
- Lead research that is synergetic with existing research activities at Sussex
- Have demonstrable sustained, exceptional performance in their research activity
- Have demonstrable ability to attract research funding

- Have significant experience in PhD student supervision

Please contact [Professor Matthias Keller \(M.K.Keller@sussex.ac.uk\)](mailto:M.K.Keller@sussex.ac.uk) or [Professor Stephan Huber \(S.Huber@sussex.ac.uk\)](mailto:S.Huber@sussex.ac.uk) for informal enquiries.

The University is committed to equality and valuing diversity, and applications are particularly welcomed from women and black and minority ethnic candidates, who are under-represented in academic posts in Science, Technology, Engineering, Medicine and Mathematics (STEMM) at Sussex.

“Please note that this position may be subject to [ATAS clearance](#) if you require visa sponsorship.”

For full details and how to apply see our [vacancies page](#)

The University of Sussex values the diversity of its staff and students and we welcome applicants from all backgrounds.

Please note: The University requires that work undertaken for the University is performed from the UK.

2. The School / Division

Please find further information regarding the school/division at <http://www.sussex.ac.uk/mps/>

3. Job Description

Job Description for the post of: Professor of Quantum Optics and Technology

Department: Physics and Astronomy

Section/Unit/School: MPS

Location: Pevensey 2

Grade: 10

Responsible to: Head of School

Responsible for: n/a

Professor is the most senior career-grade teaching and research position. Post-holders are expected to show high academic standing, to make a broad and sustained contribution to their field and discipline nationally and internationally, and to demonstrate sustained exceptional performance in research. They will demonstrate academic leadership in both teaching and research, and support the management and strategic planning processes of the School and the University.

PRINCIPAL ACCOUNTABILITIES

- To provide academic leadership in the design and delivery of innovative and high-quality teaching programmes.
- To engage in high-quality research activity resulting in high-quality publications to be submitted to the REF at acceptable levels of volume and academic excellence; to lead major research projects; to consistently secure research funding and third-stream income; and to play a key role in the development and implementation of the School research strategy.
- To provide guidance, support and mentoring to junior members of staff working in the same or cognate research areas.
- To play a key role in supporting the management activities of the School and University, and to undertake a significant School directorship role if required.

KEY RESPONSIBILITIES

1. Teaching & Student Support

- 1.1. Lead the innovative design, development and delivery of the overall curricula.
- 1.2. Regularly review and update course content and teaching materials, ensuring that they remain up-to-date and relevant, incorporating advances in the subject area and utilising appropriate technology.
- 1.3. Set, mark, and assess work and examinations; select appropriate assessment instruments and criteria; and provide constructive and comprehensive feedback to students.
- 1.4. Actively maintain an understanding of appropriate pedagogy in the subject area.
- 1.5. Provide academic leadership and inspiration to those teaching within subject area.
- 1.6. Supervise PhD students and/or externally-funded post doctoral staff.
- 1.7. Undertake and complete administrative duties required in the professional delivery of teaching.
- 1.8. Undertake academic advising duties, and provide first-line support for sensitive issues, referring on as appropriate to services providing further assistance.
- 1.9. Adopt an approachable and accessible attitude towards students, offering office hours, informal advice etc.

2. Research, Scholarship & Enterprise

- 2.1. Play a leading role in the development and implementation of School research strategies and themes, and lead and co-ordinate research activity in own subject.
- 2.2. Identify and develop research objectives, and proposals for own or joint research.
- 2.3. Carry out independent research and act as a Principal Investigator or project leader on major research projects. This may involve leading and line-managing the staff including their recruitment, probation, mentoring, performance review and staff development; managing the budget, and taking responsibility for the delivery of the programme.
- 2.4. Define research objectives and questions, review and synthesise the outcomes of research studies, and develop ideas for application of research outcomes.
- 2.5. Develop proposals for major research projects which will make a significant impact, and lead to an increase in knowledge or understanding or the development of new explanations, insights, concepts or processes.
- 2.6. Produce high-quality research outputs that are world-leading in the field, for publication in monographs or recognised high-quality journals, or performance/exhibition, as appropriate, and make a significant contribution to the School's REF assessment at acceptable levels of volume and academic excellence.
- 2.7. Make presentations at national and international conferences or exhibit work in other appropriate events of a similar standing, and play a lead role in identifying ways to disseminate research outputs informally via the internet, the media and other forms of public engagement.
- 2.8. Develop and maintain an independent research reputation by, for example, serving on peer review committees, or acting as a referee for journal articles or research grant applications.
- 2.9. Play a lead role in identifying sources of funding and securing bids, both individually and in collaboration with others.
- 2.10. Play a lead role in identifying and exploring opportunities for enterprise activity, knowledge exchange income and/or consultancy.
- 2.11. Provide academic leadership and inspiration to those working within own research area, and foster inter-disciplinary team-working.
- 2.12. Lead and develop internal and external networks to foster collaboration on both an individual level and on behalf of others in the School, share information and ideas, and promote the subject and the University, both nationally and internationally.
- 2.13. Develop successful links with external contacts such as other educational and research bodies, employers, professional bodies and other providers of

funding and research initiatives to foster collaboration and generate income, and to influence the external research and policy agenda.

- 2.14. Contribute to the enhancement of research quality and thinking in the field by being involved in quality assurance and other external decision-making bodies.
- 2.15. Act as a leading authority in the field or specialism, developing new knowledge, understanding and innovation in the area.
- 2.16. Conduct risk assessments and take responsibility for the health and safety of others, if required.

3. Contribution to School & University

- 3.1 Attend and contribute to School meetings.
- 3.2 Contribute to the overall management of the School in areas such as budget management and business planning.
- 3.3 Contribute to School- and University-level strategic planning and development.
- 3.4 Engage in activities beyond day-to-day teaching duties, for example Admissions Days.
- 3.5 Assist with undergraduate and postgraduate recruitment.
- 3.6 Chair School or University committees, and participate in University decision-making and governance.
- 3.7 Undertake a School directorship role, for example Director of Research.
- 3.8 Advise and provide support to less experienced colleagues, and conduct Performance and Development Reviews, if required.
- 3.9 Mentor staff in related or cognate research areas, providing advice on personal and career development plans, and assisting them in identifying and securing career development opportunities.
- 3.10 Undertake additional administrative duties, as required by the Head of School.

4. Role-specific duties

- 1.1. Conduct internationally leading experimental research in quantum technology, including quantum information processing, quantum sensing and applied quantum technology or related areas.
- 1.2. Seek research collaboration and synergies with existing research activities at Sussex.

1.3. Attract continuous research income.

1.4. Actively contribute the running and management of the Sussex Centre for Quantum Technologies.

INDICATIVE PERFORMANCE CRITERIA

- Evidence of quality in teaching and learning demonstrated in a range of measures, including student satisfaction; of thoughtful and effective innovation in the development of new courses and/or programmes; and of leadership in the promotion of teaching and learning in the subject.
- Proven innovative teaching practice, typically adopted as best-practice within the institution.
- Evidence of providing, or demonstrable potential to provide academic leadership, development, mentoring and career management advice for colleagues, research assistants and students in the area of teaching and learning.
- A record of consistent involvement in external examining at research-intensive universities, and other forms of engagement in upholding academic standards.
- Leadership of a national subject association.
- Evidence of commitment to improving the student experience and/or leadership of a major change project designed to improve the student experience.
- Publication of highly-regarded text books or other significant teaching materials for use in higher education, chosen by third parties on a discretionary basis.
- Evidence of sustained output of high-quality research publications or other recognised forms of output, subjected to peer review and describing significant discoveries, applications or observations.
- Evidence of leadership in the discipline and cognate disciplines, demonstrating an ability to inspire colleagues to develop their own research potential, including partnerships with individuals and/or bodies of international standing.
- Sustained record of attracting funds year-on-year, which are notable awards in terms of size and scope, and of leadership of and collaboration in significant research projects and/or consultancy or work with external organisations.
- Transfer of intellectual property into the wider economy.
- Development of research and consulting relationships with other organisations, and development of business and community links that bring tangible benefits to the University.

- Sustained record of successful postgraduate research supervision.
- Academic distinctions (e.g. academic awards; editorship of, or refereeing for, journals; grant reviewer for awarding bodies; services for learned societies; election to Fellowships).
- Transfer of research findings into practical applications and/or enrichment of the wider culture through creativity in the social sciences, humanities and the visual and performing arts.
- External and visiting appointments.
- Influence on the formulation of policy.
- Advancement of the discipline through a distinctive contribution to intellectual leadership, professional, clinical or vocational practice.
- Evidence of enhancing the international standing and profile of the School and University.
- A sustained contribution to the delivery of University and/or School strategy.
- Evidence of exceptional collegiality.
- A leadership role within the University, creating significant performance improvement.

4. Person Specification

ESSENTIAL CRITERIA

1. Educated to doctoral level in a relevant discipline (see role-specific criteria below).
2. In-depth knowledge of specialism to enable the development of new knowledge, innovation and understanding in the field.
3. Excellent interpersonal skills, with the proven ability to engage with students using a variety of different methods.
4. Excellent presentation skills, with the proven ability to communicate effectively, both orally and in writing, with students, colleagues and external audiences.
5. Significant experience of high-quality teaching at undergraduate and postgraduate level.
6. Successful track record of innovative curriculum design or redesign.
7. Significant track record of influential publications in reputable journals and other appropriate media of similar standing.

8. Successful and sustained track record of generating research and knowledge exchange income that is notable in terms of size and scope, and the translation of research results into practice.
9. Experience of successfully leading large externally-funded research projects.
10. An international reputation in the field of study.
11. Successful track record of supervising postgraduate students.
12. Evidence of proactive contribution to the School and/or University.
13. Leadership and people management skills.
14. Ability to exercise a high degree of innovation and creative problem-solving.
15. Commitment to collegiality and inter-disciplinary working.
16. Excellent organisational and administrative skills.
17. Ability to prioritise and meet deadlines.
18. A willingness to participate in support activities beyond normal teaching duties.
19. Excellent IT skills, with the ability to produce high-quality learning support materials.

ESSENTIAL ROLE-SPECIFIC CRITERIA

1. Significant track record in performing experimental research in quantum technology, quantum optics and related areas.
2. Knowledge of or involvement in the UK's National Quantum Technology Programme and similar international programmes
3. Significant track record in the commercialization of research and engagement with industry.