CANDIDATE PACK

SURREY FUTURE FAUST FELLOWSHIP

SCHOOL OF MATHS AND PHYSICS

APPLICATION CLOSING DEADLINE:

23:59 29TH SEPTEMBER 2024

UNIVERSITY OF SURREY

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MESSAGE FROM OUR VICE CHANCELLOR

FORWARD THINKING AND DOING

Surrey is made up of many talented individuals who make us a great institution. And working together, and connecting with external institutions, businesses and government make us even stronger.

Since the University's founding in the 1960s, and before that at Battersea College, our community has thrived on strong connections with the world outside our campus. This spirit of collaboration is evident across the University today at every level. It informs our teaching, adds value to our research and increases our impact – connecting people with ideas, students with opportunities and businesses with technology.

Collaboration begins with the connections we make in our community, supporting projects that make a difference locally, and extends to our global partnerships that are enabling transformative research that brings great benefits to society.

The impact of Surrey's research plays a significant role around the globe and will continue to do so as we invest in our students and strong research capabilities. Our pan-university Institute for People-Centred Artificial Intelligence aims to augment human capabilities by delivering Artificial Intelligence as an inclusive and responsible force for good. Similarly, the new Surrey Institute for Sustainability will maximise the positive impact of our research and innovation in projects such as sustainable living, net-zero energy and clean air. The Surrey Medical School will train a new generation of doctors and investigate innovative solutions to healthcare for humans and animals.

There's real energy, momentum and ambition to Surrey and our reputation, as evidenced by numerous rankings, remains on an upward trajectory. I'm excited to be able to share with you how we're taking that energy forwards into the future using our values of;

- **Inclusion -** to value everyone in our community
- **Inspiration -** to find it in ourselves and each other
- **Innovation -** to work together to make tomorrow better than yesterday
- **Integrity -** to do the right thing, individually and collectively

These collaborations, and many others, are bringing improvements across a diverse range of fields, and new connections are propelling us in surprising directions. At Surrey, we are continuously redefining and joining together the many spheres that surround us – from real worlds to virtual ones, and from the worlds inside ourselves to those at the farthest reaches of our imagination.

Join the University of Surrey
and be part of an exciting new era.

Professor G Q Max Lu AO DL FAA FTSE
President and Vice-Chancellor
University of Surrey

See our Key Facts and Figures here.
Find out more here about Sustainability at Surrey

JOIN OUR GLOBAL SUCCESS STORY

Surrey is recognised for excellence in both teaching and research, which is why national rankings put the University in and around the top 20, and within the top 200 internationally. We were proud to come 19th in the UK in the most recent Research Excellence Framework on the basis of the quality of our outputs; and overall to be regarded as being one of the fastest rising institutions overall.

Not only is Surrey known for high-quality research, it is recognised for doing research that makes a difference. That is why we were also delighted to be ranked 55th in the world for impact in the Times Higher Education league table.

Our students continue to give us remarkably positive feedback on the quality of their educational experience. In the 2022 National Student Survey, our students gave us an overall satisfaction rating of 84 per cent putting us 9th in the UK.

These measures of success only tell part of the story. It is not what we achieve but how we achieve it that matters to us. We succeed by being inclusive and we succeed by being collaborative. And we value collaboration, not just between scholars but with the wider regional and global community, and with industry and government.

To help build on our strengths, we are investing £10 million to attract the brightest scholars onto this programme of which you will be joining. We have started on this journey and a number of Surrey Future Fellows have already joined us.

Inclusion Inspiration Innovation Integrity

EQUALITY, DIVERSITY AND INCLUSION

AT SURREY, WE ARE VERY PROUD OF THE DIVERSITY WITHIN OUR COMMUNITY AND ARE COMMITTED TO PROVIDING AN INCLUSIVE ENVIRONMENT THAT OFFERS EQUITABLE OPPORTUNITIES FOR ALL

We strive for Surrey to be a place where everyone feels welcomed, valued and safe. Our vision to be a leading global university relies on our proven ability to attract the best people from the UK and internationally to work and study here; this can only be achieved when we work together to create a truly inclusive culture.

Our Equality, Diversity and Inclusion (EDI) Plan 2020-2025 lays out our aims to develop our inclusive and supportive culture, eliminate discrimination, harassment and victimisation, and advance equality of opportunities. Across University of Surrey, we are working actively towards fulfilling our EDI Plan targets and encourage everyone to engage with and participate in its progress. To achieve culture change, we are working to embed EDI in all teaching and learning, research and partnerships, as well as supporting our professional services colleagues. This will enable a self-sustaining process that will support EDI in becoming 'second nature' for our community.

See the plan here Equality, Diversity and Inclusion Plan 2020 - 2025

We are proud members of the Race Equality Charter and the Athena SWAN Charter for gender equality (holding University and departmental awards). We are also a Stonewall Diversity Champion and a committed Disability Confident employer.

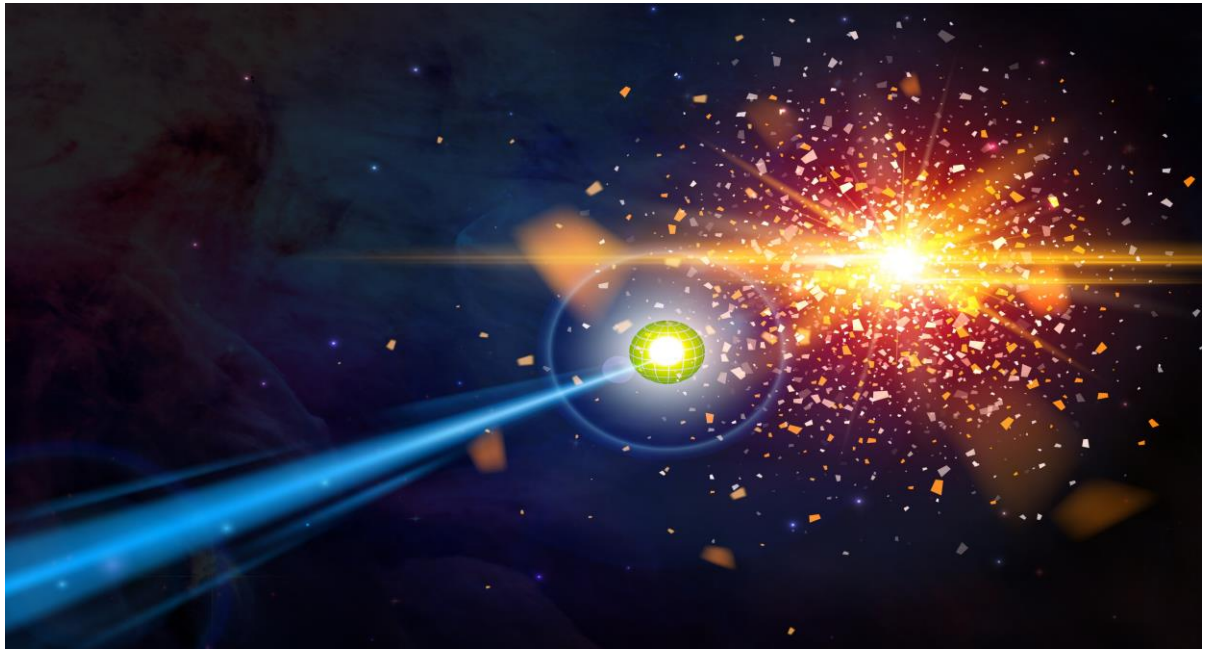
Our AccessAble app provides accessibility support to people who need it around our campus and we have thriving staff networks and equality groups that support our work in all our areas of equality (gender, race/ethnicity, LGBTQI+, disability and faith).

Watch our Inclusion Video

NUCLEAR PHYSICS RESEARCH

Research in nuclear physics at Surrey seeks to answer the following fundamental questions in science:

How are the elements and isotopes found in the Universe formed?
How do nuclear shells and shapes change with neutron excess?
What are the limits of nuclear existence?
What is the equation of state of nuclear matter?



Find out more about nuclear physics research at Surrey here

Studies of exotic nuclei for explosive nucleosynthesis

Single particle transfer reactions around islands of inversion

Nuclear reactions affecting the emission of cosmic gamma rays

Direct measurements of astrophysical reactions

Exploring exotic nuclear shapes and shape coexistence in nuclei

Discover some of the vital research questions being answered by our University of Surrey research community, relevant to Nuclear Physics.

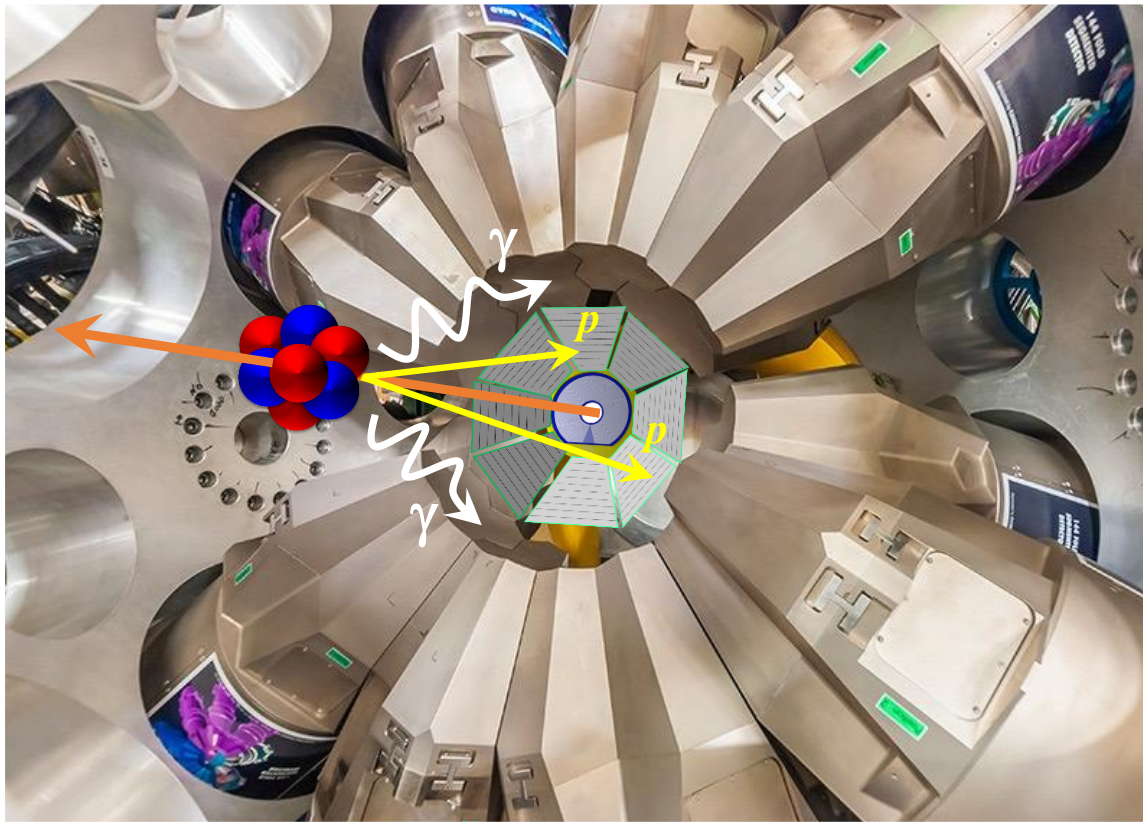
Could you contribute to these research areas or even bring your own original ideas to our Fellowship programme such that you help build a new strategic priority?

THE NUCLEAR PHYSICS GROUP

- The Nuclear Physics Group at the University of Surrey has a longstanding history of being a world leader in nuclear physics research.
- The group consists of 9 academic staff, several research fellows, and a number of research-active emeritus staff. A key aspect of the nuclear physics group at Surrey is that there is a strong link between experimental research and nuclear theory.
- The emergence of the next generation of radioactive beams facilities (e.g. FRIB, ARIEL and FAIR) has presented exciting new challenges for the field, and we are ambitiously embarking on a new era of detector technology and experimental development in order to take full advantage of these advancements.
- In particular, our research seeks to address the structure and reaction properties of key radioactive nuclei, which govern the pathways of nucleosynthesis in explosive astrophysical environments and determine the evolution of nuclear shapes and shells far from stability.
- To perform these studies, we make use of innovative charged-particle and gamma-ray spectroscopy techniques as well as magnetic spectrometers and electrostatic separators.
- Most recently, Surrey was awarded funds to lead the UK’s flagship nuclear physics project, FAUST.

THE FAUST PROJECT

The newly opened FRIB facility is now the most powerful heavy-ion accelerator facility in the world, offering the widest range of intense radioactive beams that extend to the far reaches of the nuclear landscape.



The recently funded **F**RIB **A**ccelerated-beams for **U**nderstanding **S**cience and **T**echnology (**FAUST**) project now aims to utilise immense range of isotopes available to answer fundamental questions about the cosmic origin of the elements, the structure of atomic nuclei, and the forces that shape the evolution of the Universe.

FAUST involves the development and construction of a new, multi-configuration charged-particle detection system to be used in conjunction with the world-leading GRETA 4π coverage γ-ray tracking array and S800 magnetic spectrometer (for the detection of heavy-ion recoils).

Here, bespoke silicon detectors backed with high atomic number, caesium-iodide (CsI(Tl)), and fully instrumented with digital electronics, will be developed to provide sufficient stopping power for high-energy light particles.

This state-of-the-art nuclear spectroscopy device setup, which may be configured for both forward and backward hemisphere geometries, will provide significant solid angle coverage for the detection of light, charged particles, resulting from nuclear reaction processes (e.g. (d,p), (p,t), (d,d')), and allow for measurements to be performed over the full range of energies and species available at FRIB.

GRETA will be used to detect prompt γ rays and, by combining excellent Doppler correction with high angular precision charged-particle detection, it will be possible to obtain superb energy resolution, ideal for studying nuclear states in regions of high level-density.

The new **FAUST** Fellow will liaise with Daresbury Laboratory professionals to produce technical drawings for the array, and be responsible for local acceptance testing at Surrey. They will also significantly contribute to the installation and commissioning of **FAUST** at FRIB, with a view to developing a significant UK experimental programme, using the array.

ROLE RESPONSIBILITIES

Aims of the Role

To support the construction and implementation of the FAUST project at FRIB, and to develop the programme of research and innovation proposed in their application. The Fellowship is designed specifically to provide highly talented researchers with the opportunity to take a leading role in the development of the next generation of nuclear physics detection technologies, as well as the time and support to develop into an independent research leader in nuclear physics.

Salary Range

Grade 5: £45,585 - £54,395

Salary based on experience and academic track record.

Location

Based in Guildford.

Flexible working

Many of our colleagues work flexibly in different ways and we will be happy to discuss options with you.

The Surrey Future FAUST Fellow will be involved in the areas below:

- The development, construction and commissioning of an advanced silicon detection array to be used at FRIB in the USA.
- Managing and developing the programme of research proposed in their application.
- Apply for external sources of funding to strengthen their research programme.
- Present their findings at conferences and to publish their research outcomes.
- Contribute to the academic life of the University.
- Contribute to the teaching and supervision of students (where appropriate).
- Contribute to the development of the research of the Faculty.
- Take a significant role in planning, coordinating and implementing research programmes and commercial partnerships.
- Develop new concepts and ideas, evaluate the outcomes of research and develop ideas for the application of research outcomes.
- Continually update knowledge and develop skills.
- Carry out management and administrative tasks associated with specified research funding.
- Liaise with external organisations, including equipment manufacturers, steering committees, associated academic facilities and commercial users.

CRITERIA FOR ROLE

The post holder must be able to demonstrate the following essential skills and experience required for the role:

- Achieved a PhD in physics or other physics-related discipline or will shortly awarded a PhD.

Desirable skills for the role include:

- Created original, inspirational, and realistic nuclear physics research proposals.
- An excellent track record in research (e.g. high-quality publications, and evidence of actual/potential ability in external research grant income generation).
- Motivated, led and inspired themselves and others to achieve their best.
- Interest in managing and delivering every aspect of a research programme.
- A growing reputation both within and outside of your current institution for research innovation and collaboration.

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HOW TO APPLY

Please complete our online **application form** where you will be asked to respond to a series of short questions.

You will need the following items to hand (please upload all documents into the application portal):

- Your CV (maximum two pages of A4 and up to 1,000 words in total).
- Attach your research proposal (maximum two pages of A4 and up to 1,000 words in total).
- Details of two referees.
- Optional – up to two letters of support.

Your research proposal should include the following:

1. **Research experience –** Provide a brief account of your research experience to date.

2. **Suitability for the Role of FAUST Fellow –** Provide an account of how you feel you are suited to supporting the development of the FAUST project.

3. **Vision and Objectives for the Future –** Detail the vision, aims and objectives of your potential future research programme.

4. **Potential Impact, both academic and non-academic** – Briefly outline the likely impact of your future programme, including how you will engage with users, stakeholders and beneficiaries.

TERMS AND CONDITIONS

Conditions of Employment

Fixed-Term contract for four years with presumption of leading to a permanent role.

Benefits

Link to our Benefits

Link to USS Pension Scheme

Relocation Policy

FREQUENTLY ASKED QUESTIONS (FAQS)

Will I be based on site?

Agreements are held locally between the individual and the hiring manager and you will need to explore this at interview. See our approach to flexible working - Staff Benefits and Flexible Working

What if I want/need a certain piece of equipment to fulfill my duties?

This would be assessed on a case-by-case basis so please raise this if you have specific requirements as early as possible.

What if I am not a UK Citizen?

We currently pay the full cost of obtaining a Visa to work in the UK for new staff and renewals for existing members of staff - Working At Surrey - Overseas Candidates

What is it like to live in Guildford?

Find out more here - https://www.surrey.ac.uk/working-at-surrey/guildford-life

What is your relocation allowance?

Up to £8,000 of eligible expenditure if relocating within the UK and up to £15,000 of eligible expenditure worldwide (see our Relocation Policy for all terms).

How will I be assessed?

If you are shortlisted for interview, we will confirm the exact process with you.

Can I claim interview expenses?

You can claim reasonable eligible expenses for attending an interview. You will need to settle your expenses and provide us with your receipts and fill out an Expenses Form which will be provided to you.

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