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Establishments at: Rutherford Appleton Laboratory, Oxfordshire; Daresbury Laboratory, Cheshire; UK Astronomy Centre, Edinburgh, Chilbolton Observatory, Hampshire; Isaac Newton Group, La Palma; Joint Astronomy Centre, Hawaii.
The Science and Technology Facilities Council,
A great place to start your career in science, technology, engineering or mathematics

At the STFC we want the very best people to help us deliver the very best science and engineering.

If you have obtained a Bachelor’s or Masters degree (2:1 or above) in a relevant science or engineering subject within the last 18 months, are keen to work on challenging and exciting projects with excellent training and career prospects, in a family friendly environment, and at a great location - we think you will love working for us.

Challenging and exciting work

This brochure gives a flavour of the projects that our graduates work on in the main graduate recruiting areas (ISIS, Technology, RAL Space and e-Science). A look at our website (www.stfc.ac.uk) will show you even more examples of the exciting work that we are involved in. You can be certain that a career with us will give you access to world leading research facilities and unique opportunities.

In 2009 undergraduates voted us the ‘most popular graduate employer in scientific research and development’ in the Target Jobs Awards. They wanted to work for us because we ‘operate top quality facilities and build innovative technologies to make a difference for the future’. We also consistently achieve high rankings in the Guardian UK 300 most popular graduate employers.

By joining us you will have the chance to use your knowledge and skills to make a difference in areas of major importance to society such as energy, healthcare, security, climate and environment. You can see from the case studies in this brochure, and online, that our graduates are glad they joined us!

Voted number 32 in the Guardian UK 300 most popular graduate employers, and number 5 in the Scientific research and development category
Excellent career prospects and training

Our graduate trainees are offered permanent contracts and join one of our departments, working on real projects for real customers from day one. We therefore look for graduates who can make a full contribution from the start – people with ability, ideas and initiative who can work effectively as part of a team.

Working alongside world leading scientists and engineers you will benefit from excellent on-the-job learning and development and your personal mentor will help you to develop and complete your individual learning plan. During your first two years you will work with other graduates to complete a programme of in-house training courses and workshops in a variety of personal and professional skills. You will also have the opportunity to complete a placement in a department other than your own to broaden your skills and your understanding of our organization.

You will have the opportunity to take part in our popular personal development programme - you will work with other graduates on a corporate project and spend several days and nights at sea learning to sail a Tall Ship. This special activity will give you the chance to get to know graduate colleagues from different departments, and to develop key skills that will be essential to your future career, including communication, leadership and team-working. Past participants have described the programme as "the best thing I have ever done"!

You will also be encouraged to attend external technical training and conferences relevant to your job and your personal development. Where appropriate you will work towards chartered membership of your professional institution – our training scheme is accredited by the Institution of Mechanical Engineers, the Institution of Engineering and Technology and the Institute of Physics. Many of our graduate trainees achieve chartered status within four or five years of joining us.

Our Investors in People accreditation recognises our strong commitment to developing people throughout their careers.

“the best thing I have ever done!”

We expect our graduate trainees to progress to key positions in the organisation. This may be to specialist, technical roles with little or no management responsibility, or to roles that require significant people or project management skills in addition to technical contribution. As long as your job performance and training are going well you can expect to be promoted on your second anniversary.

We collaborate in a number of major international science projects which may provide you with the opportunity to travel and/or work overseas for short periods. You may also get the chance to attend overseas conferences if they are relevant to your area of work. If you’re interested in outreach work, STFC is an active member of the national Science and Engineering Ambassadors scheme and there are opportunities to work with schools and the general public. We also sponsor the Headstart education programme for young people who are considering studying STEM subjects at university. Our graduates help with the summer schools that run at top universities throughout the UK.
A Place to make friends

Our graduates meet together regularly as part of their training, and often get together for sports and social events outside of work.

A great location

Our three research centres are in pleasant rural locations but all are within easy reach of major cities. All of our sites have facilities for cyclists (bike shelters, showers and changing facilities) as well as car parking.

Our largest site, the Rutherford Appleton Laboratory, is located in the Oxfordshire countryside close to Oxford, Reading and Newbury – so there are plenty of amenities, shops, and cultural activities nearby. London is only 45 minutes away by train. The Ridgeway National Trail runs just to the south of our site - a favourite spot for walkers, mountain bikers and horse riders.

Daresbury Laboratory is on the banks of the Bridgewater Canal in the Cheshire countryside. It is within easy reach of both Liverpool and Manchester, so again plenty of nightlife and shopping close at hand if that is what you are looking for.

The UK Astronomy Technology Centre is based at the historic Royal Observatory Edinburgh, just outside the city centre. The site is shared with the University of Edinburgh and has breathtaking views across the countryside to the Firth of Forth.

Family friendly

Whether you already have family commitments - or plan to in the future - you won’t find many places that offer more flexibility and support for work-life balance than we do, including excellent annual leave and maternity provision, a variety of flexible working options, childcare vouchers, and an onsite nursery at two of our locations. Full details are available on our website at www.stfc.ac.uk. We are pleased that staff and visitors describe our working environment as informal and friendly. All our sites have subsidised restaurants and some have recreational facilities where colleagues can meet socially.
e-Science

The e-Science Centre develops technologies enabling scientists to exploit the many terabytes of data that they generate each day. We recruit graduates from a variety of disciplines with an interest in computing, working with scientists, problem solving and developing their skills in software engineering and Linux system management.

One of our major challenges is to provide many thousands of CPU cores and in excess of 25,000 TB of storage to the Large Hadron Collider computing grid. This worldwide collaboration brings together over 35 countries to investigate the fundamental concepts of our universe. You’ll use the skills you have and learn whatever else is needed to help us meet the challenges of projects like this.

To further your personal development the e-Science Centre places graduates in a new role every six months for the first two years. You’ll provide valuable input to a number of high visibility projects and develop skills to further your career and you’ll be able to work creatively, in a way that suits you, alongside top UK researchers. e-Science needs analytically-minded graduates interested in:

- Problem Solving
- Programming
- Linux System Administration
- Databases

“When I joined the e-Science Centre, I’d studied physics at university and I’d done some Java and Fortran programming along the way. Two years and four projects later, I’ve already done serious work in Java, C# and Python with Linux, MySQL and anything else which came up. I’ve worked as part of a big European project, which has taken me to Taiwan and Denmark. Just as important, I’ve been skiing with other graduates I met here, and my 6-a-side lunchtime football team got promoted last year.”

Will (Software Engineer)

“Since joining the e-Science Centre two years ago I’ve worked on a number of high profile tasks in a European-wide grid computing project, successfully led a team of students through the six month Engineering in Education scheme and represented STFC at a number of overseas conferences. I’ve found it to be a really rewarding experience and made some great friends along the way.”

John (Software Engineer)
ISIS

ISIS is the world’s most productive neutron and muon source and is a leading centre for scientific research. We recruit graduates in mechanical and electrical engineering, and physics.

Based at the Rutherford Appleton Laboratory, ISIS, which is often described as a ‘super microscope’, accelerates bunches of protons to velocities close to the speed of light. These protons are smashed into high density targets to produce intense neutron and muon beams which are used by scientists to study materials at the atomic level. Our national and international community of more than 2000 scientists use the ISIS facility to carry out research in the fields of physics, chemistry, materials science, geology, engineering and biology.

Running this complex experimental machine requires staff with expertise in physics, computing, electrical and electronic engineering and mechanical engineering. By becoming an ISIS graduate you will be joining a dedicated team of scientists and engineers whose knowledge and experience is renowned as world leading.
Inside the ISIS experimental hall

At ISIS we provide our graduates with exceptional opportunities and training. But don’t just take our word for it – here’s what some of our recent graduates have to say about their experiences so far...

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“I started as a mechanical engineer in the ISIS. I enjoyed the diverse range of projects, and being responsible for the project from the initial concept all the way through to commissioning. ISIS provided the necessary work and training required for me to achieve chartered status with the IMechE. It is very supportive in developing the careers of its staff.” Steph (Mechanical Engineer)

“I came to RAL after achieving a MEng degree in Electrical and Electronic Engineering from the University of Bath. I joined the graduate training scheme which gave me the opportunity to improve my technical knowledge as well as allowing me to attend courses such as time and budget management, innovation and people skills. I am now responsible for a large upgrade project on ISIS which has gained me great recognition within the organisation. I hope to use this work as evidence towards becoming chartered with the IET.” Jonny (Electrical Engineer)

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“I joined the Accelerator Physics group at ISIS and I am loving it! From day one I have been working with real beam data and have been given the opportunity to get stuck in with machine operation sessions.” Hayley (Accelerator Physicist)

“Having never really heard of the STFC, I was amazed that I could apply my degree to the exciting work undertaken at ISIS. Accelerating protons to 800 MeV poses some serious engineering challenges and it is brilliant to get a chance to wrestle with these each day. On top of this, there is a strong focus on personal development and a great social side. I am really glad I chose ISIS as the place to start my career.” John (Electronics Engineer)
RAL Space

RAL Space has an international reputation for excellence in space science and technology, supporting European Space Agency (ESA) and NASA missions. We recruit graduates in mechanical, electronic and thermal engineering.

We provide world leading research and technology development, space test facilities, instrument and mission design, and studies of science and technology requirements for new missions.

Space Electronics Group

We design and build measurement and control systems for satellite and ground-based scientific instruments. These can be for a variety of projects, including astronomy, earth observation or planetary sciences. As a graduate electronics engineer, you will have an important role in our projects working on complex design and analysis tasks, so a good knowledge of either electronics or software design is essential. You can expect to participate fully in design reviews and will interface with our customers, hence you’ll also have excellent communication skills.

Mechanical Engineering Group

We are involved in a wide range of projects, both for space missions and ground-based astronomy telescopes, performing mechanical engineering tasks, design and analysis. We also assemble and test instruments.

As a graduate mechanical engineer, you will play a key role in project teams, exchanging information, documenting designs and presenting to customers and external panels at design reviews. Building on an aptitude for mechanical design and analysis, you will become a skilled engineer and innovator, with an ability to solve sometimes complex and unusual problems requiring lateral thought.
Thermal Engineering Group

We are responsible for the design, development and testing of spacecraft scientific payloads and ground-based space instruments. Our day-to-day work ranges from studies for future missions through to the design and testing of high-profile instruments, such as MIRI. Part of the James Webb Space Telescope, the thermal challenge is to cool MIRI’s detectors to a chilly 6 K (-267°C).

We expect you to have an excellent understanding of heat transfer, and a practical knowledge of other engineering disciplines. Preparing tests and fitting hardware to space instruments means that ‘hands-on’ practical abilities are an advantage.

“My work has involved designing and testing electronics to acquire high-resolution images from a science-grade CCD sensor for NASA solar physics and earth observation missions. I have also dealt with the managerial and financial aspects of projects and it is this combination of roles that makes working here an enjoyable and rewarding experience.” Tom (Electronic Engineer)

“My work has ranged from small thermal studies for concept space missions to larger projects where I am responsible for the thermal design and analysis of space instruments. I also enjoyed a secondment to ISIS for three months. Soon after joining the group I found I was taking real responsibility for work and it was very rewarding to see where my efforts were making a difference. I would recommend the STFC graduate scheme to any engineers looking for a structured and enjoyable start to their career.”

Olly (Thermal Engineer)
Technology

Technology Department combines advanced engineering techniques with world leading technology to support scientific discovery. We recruit mechanical, electrical, electronic, microelectronic and software engineers.

We deal with engineering problems from the very large to the very small, from vast structures such as those required for the Large Hadron Collider (LHC) at CERN, to minute microelectronic chips where individual transistors are several thousand times smaller than a human hair. Using our expertise, leading-edge facilities and the application of advanced technologies, we meet the most formidable of design challenges.

Microelectronics

Our microelectronic systems range from single full-custom ASIC system-on-chip solutions to complex systems that use tens of thousands of custom chips and hundreds of multi-million gate FPGAs. We are also world leaders in the development of CMOS Monolithic Active Pixel sensors that combine image detectors and processing electronics in a single piece of silicon. Our microelectronic designers are involved in all levels of a project from concept, through design and verification to implementation, test and integration. To meet the demanding specifications of our customers, we make full use of the latest leading-edge IC processes and industry standard CAD tools. Our ASICs, Sensors and FPGA-based circuits are used in systems throughout the world and even in space!

“"My first project involved the design of a small image sensor. It was challenging, but I was given a lot of support by team members and made use of their design experience. I tested my chip and found some interesting results, which I presented at a conference and in a journal paper. I’ve learnt an incredible amount during my time here, through being challenged but also by taking the initiative to learn.”

Rebecca, Integrated Circuits Design Engineer.

“As a CAD design specialist, my work involves resolving design issues from our broad customer base of over 600 universities and research institutions. Our group also develops and delivers bespoke training courses, addressing best practice design techniques and CAD tool usage. My work is extremely varied, challenging and thoroughly enjoyable.”

Russ, CAD Design Specialist
Mechanical Engineering, Materials, Cryogenics, Magnetics and Energy Research

We develop complex engineering solutions using new technologies and novel materials for scientific systems including many international experimental facilities such as the LHC at CERN, the Japanese T2K experiment, the Atacama Large Millimeter Array and ITER. We are also involved in developing advanced instrumentation systems for observational astronomy, inspired by the need to detect fainter and more distant objects, and to improve our understanding of brighter objects.

One of our specialities is designing and manufacturing crucial components that are required to operate in demanding environments, such as high radiation or at extreme temperatures. We have designed some of the world’s largest superconducting magnets, developed advanced closed cycle refrigerators for space applications and built cryostats for ground-based telescopes. We are also researching energy technologies, including wind power generation and sustainable hydrogen production.

“Our work is incredibly diverse; I’ve already had experience of cryogenic and vacuum systems, advanced materials, fluid dynamics simulations, finite element analysis and even getting my hands dirty in the workshop. I actually look forward to getting into work in the morning!” Stephen (Mechanical Engineer)

“I wanted to contribute to the exciting range of research that is performed here and I have been involved in the development of a dual beam optical trapping system which will eventually be used on an X-ray beam line. Being on the graduate scheme really gives you a feel for what goes on throughout the whole of STFC.” Stephanie (Materials Scientist)

How to apply

Details of how to apply and this year’s graduate opportunities are available on our website at www.graduates.stfc.ac.uk. Note that in addition to the science and engineering disciplines mentioned in this brochure we occasionally recruit humanities graduates to work in areas such as Finance, Communications, or Human Resources.

We look forward to hearing from you!
Want to make a difference in science, technology and engineering?

Graduate Careers with STFC

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