Chair in Low Temperature Plasmas
School of Physics, Engineering and Technology

Closing Date: 13 January 2022
Interview Date: 7 February 2022
Ref: 10216
INTRODUCTION

The York Plasma Institute (YPI) is seeking an experienced research leader in an area of plasma physics for appointment as a senior Professor at the University of York. The appointed person will lead their own individual research programme in an area of low temperature plasmas, enhancing and complementing existing activities within YPI in this field.

The YPI was opened by the then Government Chief Scientific Advisor Professor Sir John Beddington in 2012. Research in YPI currently centres on the science and applications of low temperature plasmas, magnetic confinement fusion and laser-plasmas/inertial fusion.

Current academic staff numbers in YPI include seven working in magnetic confinement research, seven in laser-plasmas/inertial fusion and two in low temperature plasmas. While current research is focused on laboratory plasmas, both at York and at international facilities, there are strong synergies with space, solar and astrophysical plasma systems.

Professor Kieran Gibson
Head of School
Main purpose of the role

Chairs at York are expected to advance their subject nationally and internationally and to contribute to maintaining the University as an international centre of excellence for the relevant subject area through research and publication, teaching, networking and consultancy.

The appointed person will be required to undertake the following:

1. Lead an individual research programme in an area of low-temperature plasma science and technology that expands the research interests and capabilities of YPI, either in an existing research area or in a complementary low temperature plasma research discipline.

2. Provide leadership, working in partnership with academic staff to create an internationally outstanding research and training environment for the YPI.

3. Contribute to the teaching of undergraduates and postgraduate students in the School of Physics, Engineering and Technology

Key responsibilities

(Role holders will be required to undertake some or all of the duties below)

To support the research activities of the School

- To attract and supervise research students, and, as appropriate, post-doctoral researchers and other support staff
- To foster links between YPI and other international research organisations, including industry, to benefit the research environment for staff and maximise the impact of YPI research and its outputs
- To support, comply with, and contribute fully to research plans and policies of the School and the University
- To support and mentor early career academic colleagues in order to promote quality of teaching and research and their career development

To support the teaching objectives of the School

- To design and be responsible for delivery of modules and teaching programmes for undergraduate and graduate students
- To play a leading role in School and interdepartmental curriculum development and quality enhancement
- To coordinate team teaching, as required, including liaison with other staff and with postgraduates who teach
- To design and mark assessments, and give feedback
- To supervise undergraduate and graduate projects and dissertations
- To carry out teaching in Continuing Professional Development
- To undertake pastoral support of students, as a personal supervisor or in another designated role
- To support and promote fully the University and School teaching quality assurance standards and procedures

To contribute to the efficient management and administration of the School

- To make an important contribution to the leadership and management of the School, including supporting early career staff and developing new collaborative initiatives
- To attend School meetings, meetings of the Board of Studies, and other committees and working groups within the School and University
- To carry out relevant professional duties, commensurate with the Professorial grade
- To undertake specific roles and management functions as may be reasonably required by the Head of School
- To support an inclusive and enabling environment that welcomes and motivates students and staff.
## PERSON SPECIFICATION

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<thead>
<tr>
<th>Qualifications</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>PhD in relevant field</td>
<td>Essential</td>
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<tr>
<td>High level membership of professional societies</td>
<td>Desirable</td>
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<td>International awards and recognition</td>
<td>Desirable</td>
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## Knowledge

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<tr>
<th>Knowledge</th>
<th>Essential / Desirable</th>
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<tr>
<td>Outstanding and internationally recognised knowledge of a relevant subject area</td>
<td>Essential</td>
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<td>Knowledge of the international plasma physics community, and related opportunities</td>
<td>Essential</td>
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## Skills, abilities and competencies

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<th>Skills, abilities and competencies</th>
<th>Essential / Desirable</th>
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<tbody>
<tr>
<td>Ability to define, lead, manage and attract funds for internationally excellent research</td>
<td>Essential</td>
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<td>Proven leadership and managerial skills</td>
<td>Essential</td>
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<td>Ability to manage and interact with staff and students at all levels and to contribute to broadening the strategic development of the School</td>
<td>Essential</td>
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<td>Evidence of international collaboration</td>
<td>Essential</td>
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<td>Ability to enthuse students through teaching at both undergraduate and postgraduate level</td>
<td>Essential</td>
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<td>Ability to manage a large, complex research programme</td>
<td>Essential</td>
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<td>Evidence of peer review activities</td>
<td>Desirable</td>
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## Experience

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<th>Experience</th>
<th>Essential / Desirable</th>
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<tr>
<td>International leader in a major relevant research field with evidence of leadership of a substantial research group</td>
<td>Essential</td>
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<td>Substantial, world-class publication record in leading peer-reviewed journals</td>
<td>Essential</td>
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<td>Attraction and effective supervision of postgraduate students</td>
<td>Essential</td>
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<tr>
<td>Significant and sustained success in accessing research grants and other external funding</td>
<td>Essential</td>
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<tr>
<td>Experience of leading a complex research programme</td>
<td>Essential</td>
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## PERSON SPECIFICATION

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<th>Experience (continued)</th>
<th>Essential/ Desirable</th>
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<tbody>
<tr>
<td>Invited presentations at major international conferences</td>
<td>Essential</td>
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<tr>
<td>Effective and sustained involvement in major administrative tasks or positions of responsibility within a department or research unit</td>
<td>Essential</td>
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<tr>
<td>Exceptional achievement in curriculum development, course design and teaching, learning and assessment methods at UG and PG levels and in encouraging student access and engagement</td>
<td>Desirable</td>
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<td>Editorial duties with journals</td>
<td>Desirable</td>
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<td>Participation in national teaching initiatives or international equivalents</td>
<td>Desirable</td>
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### Personal attributes

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<th>Essential/ Desirable</th>
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<tr>
<td>Demonstrable capacity for strategic thinking, planning and delivering</td>
<td>Essential</td>
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<td>Ability to take a lead in key administration functions within the School</td>
<td>Essential</td>
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<td>Self-motivated, pro-active and innovative</td>
<td>Essential</td>
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<td>Ability to develop a vision and promote that vision to colleagues and peers</td>
<td>Essential</td>
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THE YORK PLASMA INSTITUTE (YPI) AND SCHOOL OF PHYSICS, ENGINEERING AND TECHNOLOGY

The York Plasma Institute (YPI) is one of the largest research groupings within the School of Physics, Engineering and Technology at the University of York. The YPI was opened by the then Government Chief Scientific Advisor Professor Sir John Beddington in 2012. Research in YPI currently centres on magnetic confinement fusion, laser-plasmas/inertial fusion and low temperature plasmas for technological and biomedical applications. Current academic staff numbers in YPI include seven working in magnetic confinement research, seven in laser-plasmas/inertial fusion and two in low temperature plasmas. These 18 academic staff in YPI along with approximately 40 PhD students and 14 post-doctoral research assistants are housed in a separate office building on the edge of the University of York Science Park. The University of York acts as lead university for an EPSRC Centre for Doctoral Training in the Science and Technology of Fusion Energy so that YPI also houses students from the partner universities for taught courses. YPI also operates a one-year taught MSc in Fusion Energy with a typical intake of 20 students. A specialist laboratory building is near the YPI office building and contains several low temperature plasma laboratories exploring applications of plasmas in biology, medicine, the environment, surface science, space propulsion. There is, in addition, an extreme ultra-violet capillary discharge laser for the study of laser ablation, a large linear magnetic device for exploring macroscopic plasma behaviour in magnetic fields and a laboratory space developing microwave probing of magnetised plasmas.

Many staff undertake experiments at large external international-class tokamak or laser facilities. The YPI research on magnetic confinement is strongly linked to the UK’s national fusion research programme at the Culham Centre for Fusion Energy, while the laser-plasma research benefits from the Central Laser Facility and the Orion laser in the UK; both make extensive use of international facilities. There is a strong theory and simulation capability in YPI, for example, in the areas of laser interaction at ultra-high intensity, tokamak plasma simulation and low temperature plasmas. A fleet of workstations is maintained for the plasma research of YPI.

The School of Physics, Engineering and Technology

The School of Physics, Engineering and Technology will formally launch from summer 2022, bringing together the combined strengths of our existing Departments of Electronic Engineering and Physics, with new initiatives - especially those that enhance our capability in addressing key challenges facing humanity.

The present Department of Electronic Engineering has an international reputation for excellence in research and teaching. Our research groups play significant roles on the national and international stage, collaborating with major industries and securing funding from research councils. In the latest Research Excellence Framework assessment (2014), 87% of our work was assessed as world leading or internationally excellent.
THE YORK PLASMA INSTITUTE (YPI) AND SCHOOL OF PHYSICS, ENGINEERING AND TECHNOLOGY

As a School we strive to provide a working environment which allows all staff and students to contribute fully, to flourish, and to excel. We are proud of our Athena SWAN Bronze Award.

The present Department of Physics is at the forefront of pioneering global research and technological advancement in our world leading research centres, focused around biophysics, condensed matter physics, nuclear physics, and plasma physics and fusion energy at the York Plasma Institute. As a Department we strive to provide a working environment which allows all staff and students to contribute fully, to flourish, and to excel. We aim to ensure that there is a supportive and egalitarian culture at all levels and across all staff groups. We promote good practice and a strong culture of equality in higher education, and are proud of our Juno Champion Award and Athena SWAN Silver Award.

Turning to the vision for the School of Physics, Engineering and Technology, its research philosophy values and supports blue skies thinking that underpins the individual research ambitions of our staff, while at the same time providing a framework that fosters innovation in goal-driven research to meet some of the grand challenges of society. To enable this, the research structure of the School will be divided into two sets of Themes: Discovery and Translational.

Discovery Themes are the technical topical themes that characterise and underpin our core disciplines of Engineering and Physics. They represent our traditional strengths, with a philosophy of academic freedom and blue skies thinking at their heart. They have a close and direct coupling with our taught undergraduate programmes, and provide a rich, diverse, stimulating environment with strong internal and international collaborations, seeking to enable our research staff and students to realise their individual ambitions.

The precise definition of the themes is still under discussion, but is expected to include the following topical areas:

- Intelligent Systems & Robotics
- Healthcare Engineering
- Communication Technologies
- Condensed Matter & Materials Physics
- Quantum Science & Technologies
- Plasma & Fusion Science and Technology
- Physics of Life
- Nuclear Physics

Translational Themes are new, but build on the solid foundations of the Discovery Themes. They create opportunities to drive our fundamental research activities up the lower ranks of the Technology Readiness Level (TRL) scale towards a level of maturity that provides external stakeholders with the confidence to invest, and so accelerate research discoveries and ideas towards societal, environmental and economic benefit. The chosen thematic areas and the projects within them, are motivated by the pull of society’s grand challenges, and are expected to be highly coordinated, strategic, interdisciplinary projects typically involving strong collaborations across University Departments and Centres, as well as with external stakeholders. The definition of the themes is still under discussion, but is expected to include the following topical areas:

- Healthcare and Bioscience
- Sustainable Energy
- Technologies for Challenging Environments
- Engineering the Virtual World
- Next Generation Devices

The new research area of Virtual Engineering is expected to sit within the Theme of Engineering the Virtual World. It will sit alongside other subthemes, such as Interactive & Immersive Technologies and Machine Intelligence.
OUR COMMITMENT TO EQUALITY, DIVERSITY AND INCLUSION

Founded on the principles of excellence, equality and opportunity for all, the University is proud to create an environment that attracts staff and students from all over the world. What we gain from diversity is immeasurable.

Our Equality, Diversity and Inclusion Strategy, which was developed in partnership with our staff and student communities, describes our commitment to create a culture where everyone can contribute to university life, knowledge and growth.

We want to create a working, learning, social and living environment that will enable all staff and students to achieve their full potential. Our strategy sets out an ambitious set of objectives to succeed in our commitment, but we have a challenging journey ahead. We recognise that we are not truly representative of our communities locally, nationally and internationally. We would like to pay particular focus to gender parity across all levels, particularly in senior roles; the recruitment, retention and success of a more ethnically diverse staff and student community; an accessible and inclusive campus and ensuring that the values and behaviours we expect from everyone embrace inclusive responsibility and leadership.

Opportunity for all
Our outreach programmes and widening participation work have made us one of the most socially diverse universities among our peers. The York Students in Schools (YSIS) programme has been providing a helping hand in the city’s classrooms for 25 years, placing around 700 students with local schools every year. It recently introduced a new English and Mathematics tutoring scheme.

A report by The Reform Research Trust in September 2017 ranked York second out of 29 high-tariff institutions for our track record in increasing access for disadvantaged students from 2011/12 to 2015/16.

Wellbeing and support
Students are encouraged to balance their studies with activities and interests to give them a healthier and more rounded student experience. We have invested heavily in support of physical health with new and improved sports facilities, and in mental health through our Open Door counselling and crisis team which now opens in the evenings during term time. We have also developed a support network of staff trained in Mental Health First Aid. University staff have access to wellbeing help and support, and can access advice through our site. Further information on our health and wellbeing support can be found at https://www.york.ac.uk/staff/support/.
We are a world-class institution, focused on creating an environment of excellence in which all our students, staff and researchers can thrive. Our Research Strategy encompasses our vision that York should provide a home for some of the best research in the world. ([https://www.york.ac.uk/research/](https://www.york.ac.uk/research/))

We are a high-performing member of the Russell Group, ranked 16th in the Guardian’s Best University UK Universities 2021 League Table, and 30th in the Complete University Guide 2020. We have been awarded TEF Gold for our research-led teaching which provides "consistently outstanding outcomes for students from all backgrounds".

Our Equality, Diversity and Inclusion Strategy speaks to the core of our values. We hold 16 awards from Athena SWAN, recognising the advancement of gender equality: representation, progression and success for all.

At the heart of the region

The University is deeply embedded in the local community of North Yorkshire. Our values and commitment to the public good have never been more important. We are a hub for sharing knowledge, inspiring collaboration and enriching lives.

In 2021 we were shortlisted for Times Higher Education’s University of the Year Award in recognition to the University’s response to the Covid pandemic ([The Year We Came Together - Our Covid-19 response](#)).

Across the University, we are mobilising our knowledge, our people and our resources to tackle the immediate and long-term challenges. The new University Strategy 2030, ([A University for Public Good](#)) was launched at the end of 2021, outlining our vision and strategy for the next decade. Further information on the new strategy can be found on the following webpages; ([https://www.york.ac.uk/about/mission-strategies/vision-for-york/](https://www.york.ac.uk/about/mission-strategies/vision-for-york/)).
Attractive workplace

Centred around the picturesque village of Heslington on the edge of the city of York, our colleges are set in an attractive landscaped campus. York enjoys a safe, friendly atmosphere with facilities including bars, shops, theatres and concert halls all within easy walking distance.

The University has undergone an unprecedented period of expansion and renewal since 2000. We have invested in twenty new buildings on the original campus and have completed the first and second phases of a £750m campus expansion. Our investment in new colleges, teaching and learning spaces, laboratories, research facilities and a new sports village mean there has never been a better time to join us.

During this period of change we’ve worked hard to retain our friendly, informal and collegiate atmosphere, which is important to our core values of inclusivity and interdisciplinarity.

We have a thriving international community and are committed to providing staff moving to York with as much support as possible through our Relocation Package and Welcome Officers.

The University is committed to promoting a diverse and inclusive community - a place where we can all be ourselves and succeed on merit. We offer a range of family friendly, inclusive employment policies, flexible working arrangements, staff engagement forums, campus facilities and services to support staff from different backgrounds.

For further information please visit our employee benefit pages.
THE CITY AND THE REGION

The City of York

Internationally acclaimed for its rich heritage and historic architecture, York's bustling streets are filled with visitors from all over the world. Within its medieval walls you will find the iconic gothic Minster, Clifford's Tower and the Shambles - just a few of the many attractions.

But York isn't just a great place to visit - it's also a great place to live and work. While nourishing a vibrant cosmopolitan atmosphere, York still maintains the friendly sense of community unique to a small city.

Visit www.visityork.org for more information on the city of York

Shopping, culture and entertainment

York boasts specialist and unique boutiques but also all the high street stores on its busy shopping streets. Alongside them you will find cinemas, theatres, an opera house, art galleries, a vast range of restaurants, live music venues and clubs. York is particularly renowned for its multitude of pubs and bars, from the modern to the medieval.

Housing and schools

Whether you choose to live close to the city, in one of the surrounding villages or further afield, you will find a wide range of housing within comfortable distance of York and the University. For families, the area has a range of excellent schools both in the state and independent sector.

Great location

York is one of Britain's best-connected cities. Halfway between London and Edinburgh on the East Coast mainline, on intercity trains you can reach London King's Cross in less than two hours and Edinburgh in two and a half hours. York is also well served by road links, and it is easily accessible from the A1, M1 and the M62.

For those travelling from overseas, Manchester Airport is two hours away and Heathrow Airport just three and a half. Flights from nearby Leeds Bradford Airport provide easy access to mainland Europe. By Eurostar from London St Pancras, Paris is just over six hours away.

Yorkshire

The Lonely Planet guide recently declared Yorkshire the third best region in the world to visit. There is something to cater to every taste, whether it be the rugged landscapes of the Moors or the Dales, the picturesque seaside towns of Scarborough and Robin Hoods Bay, the gothic architecture of Whitby or the vibrancy of cosmopolitan Leeds.
Apply online

- Go to [https://jobs.york.ac.uk](https://jobs.york.ac.uk)
- Find this job using reference 10216
- Complete the online application form

You will need to submit your completed application by midnight (local UK time) on 13 January 2022.

Interviews will take place on the 7 February 2022.

What will I need?

We will ask you for details of:

- Your CV
- A letter describing how you meet the requirements of the job
- A statement of your research and teaching intentions

You will also need details of three academic referees (one International) and one Employment referee.

Help and assistance

Direct any informal queries to Prof Kieran Gibson (kieran.gibson@york.ac.uk)

If you have any questions about your application, contact the HR Services team:

recruitment@york.ac.uk
+44 (0)1904 324835