THE POST

Faculty:	**Environment, Science and Economy**
Post:	Postdoctoral Research Fellow in Dynamics of Magnetic 3D Nanoscale Metamaterials
Reference No:	Q13163
Grade:	F – Starting Salary from £43,482 – qualifications and experience dependent.
Reporting To:	Prof. R. J. Hicken

This full-time (36.5 hrs) post is **available from 01 APRIL 2026** for **two years** in the Faculty of Science, Environment & Economy.

Job Description

At the University of Exeter, we're looking for people who have a passion for science, with ambition to apply their own ideas, perspectives, and their personal skillset – within a welcoming, flexible and inclusive environment – to the discovery and development of new metamaterials, and to be part of the team that helps drive translation of these innovations to commercial success across a range of sectors.

The £20 million MetaHUB is the UK's single largest investment to-date in the vibrant field of Metamaterials research. Our 3D Nanoscale Metamaterials Hub for a Sustainable Future is recognised in the Advanced Manufacturing sector plan of the UK's Modern Industrial Strategy 2025. We are a key part of the UK government's timeline for developing and commercialising advanced materials at the interface between academia and industry.

The Environment Where You Will Work

If your application is successful, you will join the Electromagnetic and Acoustic Materials group in the University of Exeter Department of Physics and Astronomy on our Streatham campus, where you will be based as a Postdoctoral Research Fellow working on the research challenge outlined in the **Main Purpose of the Job**: below. You will also be a member of the **Exeter Centre for Metamaterials Research & Innovation (CMRI)** and a key part of the multi-institution MetaHUB team.

You will work in a hybrid environment, predominantly based in our laboratories and offices in Exeter, but with occasional travel to partner sites, and other national and sometimes international travel for related research and engagement work. Some office-based tasks can be undertaken at home if you choose. All

facilities and equipment required to undertake the purpose of the role (including computing equipment) will be provided by the university and/or its partners.

Many of our research projects in MetaHUB are shared across institutions, and some project outputs cut across themes; so, you should be prepared to work collaboratively, sharing and expanding your knowledge and skills with the wider MetaHUB research team and our project partners, to deliver multiple joint outcomes.

Our hub conducts metamaterials research in four principle thematic areas: Energy, ICT, Sensing, and Scale-Up. Led by the University of Exeter, MetaHUB brings together around 30 academics, involving their research teams at the University of Cambridge, Cardiff University, University of Southampton, University of St Andrews, and King's College London. We have more than 40 industrial partners – from SMEs to large multi-nationals – and strong links to UK national investments such as the Henry Royce Institute, the High Value Manufacturing Catapult, and the National Physical Laboratory, as well as direct links to the Defence Science & Technology Laboratories , the Ministry of Defence and the Department of Science, Innovation, and Technology.

Together, this collective is working to develop fundamental metamaterials science, but with commercial and industrial guidance to ensure that what happens in the lab is scalable for practical, cost-effective manufacture, and is translatable to address current and future real-world challenges.

If this collaborative, multidisciplinary research environment excites you, and you would be interested in accessing the pooled resources of MetaHUB and its network to enhance your career, please read below to find out how you could contribute to the hub and the Exeter team.

Exeter Are Keen to Welcome Applications from the Widest Range of Qualified Applicants.

With our new Metamaterials initiative, we are committed to addressing a range of equity, diversity, inclusion, and accessibility (EDIA) challenges faced by the Engineering, Mathematics, and Physical Sciences (EMPS) community. We welcome applications from all qualified candidates, and wish to particularly encourage applications from women, from Black and Minority Ethnic candidates, from disabled people, and from people from lower socioeconomic backgrounds who are all underrepresented at this level. We are committed to nurturing teams that comprise people who have the widest of personal experiences and backgrounds, making MetaHUB a launchpad to strengthen the research and development sectors that we feed into. Together, we tackle a range of challenges affecting all society, in a manner that draws on diverse perspectives from across our society.

MetaHUB is working alongside the EDI Hub+ to be a beacon for EDIA in the EMPS community, and we expect the whole MetaHUB team to actively demonstrate a meaningful commitment to EDIA at all times.

You can find out about the **Electromagnetic and Acoustic Materials group** here, its character, ethos, and who's in the team currently. You'll also get a feel for the research environment, the activities and facilities accessible to the team, to give you an idea of what working here might be like.

The group are housed in the Physics Building with multi-occupancy offices. The building is equipped with lifts to all floors, has a locked refrigerator reserved for the safe storage of expressed milk to support nursing parents, and has step-free access to a multi-use private quiet space in the neighbouring building. The University of Exeter's Streatham Campus houses a multi-faith centre, with prayer rooms and ablution spaces.

Exeter Physics & Astronomy is an inclusive community, with existing **peer support networks for women, LGBTQ+, and ethnic minority staff and students** who call the department home. The **departmental EDI Committee** also work closely with University-wide **staff and student networks** and they organise bi-weekly departmental "EDI Lunch & Learn" seminars to build intersectional allyship through the increased awareness of EDI issues, initiatives and interventions.

We have a welcoming departmental post-doc network, with regular coffee meets – a friendly space to address questions related to working and living in Exeter – and career enhancing training workshops on aspects such as grant writing, science communication, and growing your own network.

What You Will Get:

- A role at the forefront of Metamaterials research in the UK.
- A flexible, supportive and inclusive team environment at a research-intensive university, where your work is seen and has meaning.
- Opportunities to collaborate, learn and utilise resources from a deep pool of connections in academia, industry, policy, and government, to develop your career alongside the fundamental science.
- The potential to take your metamaterials discoveries to market, affect government policy and national investment in this field.
- A role where your contribution to metamaterials science can make a real-world impact on people's lives and the environment.

Main Purpose of the Job:

The project will explore the dynamical magnetic processes that occur in magnetic 3D nanoscale metamaterials created from the deposition of magnetic material on scaffolds formed by two-photon lithography.

Specifically, you will investigate how vortex and spin wave dynamics are modified in a curvilinear geometry and how this leads to the collective modes of lattice structures such as artificial spin ice. Such structures are of interest for future energy efficient data storage and neuromorphic computing applications within the ICT thematic area of the MetaHUB. Sample sizes will typically be of order 100 square microns and specialized measurement techniques are required to explore their dynamics.

You will use wide field Kerr microscopy (WFKM) and vector network analyser ferromagnetic resonance (VNA-FMR) for initial triage of samples, before using time resolved scanning Kerr microscopy (TRSKM) and time resolved beam scanning Kerr microscopy (TRBSKM) to map the spatial dependence of their dynamics. Near field TRSKM will be used to probe dynamics at the level of individual nano-elements. You will be expected to contribute to the continued development and fabrication of near field probes using a combination of focused ion beam milling and finite element modelling.

Experience of one or more of time resolved optical measurements, near field optical sensing, and magnetic and spintronic materials is desirable.

Our Expectations of You:

1. To undertake research as appropriate to the field of study. The responsibilities may include all or some of the following:
    - Acting as principal investigator on research projects;
    - Developing research objectives, projects and proposals;
    - Conducting individual or collaborative research projects;
    - Identifying sources of funding and contributing to the process of securing funds;
    - Extending, transforming and applying knowledge acquired from scholarship to research and appropriate external activities;
    - Writing or contributing to publications or disseminating research findings using media appropriate to the discipline;
    - Making presentations at conferences or exhibiting work in other appropriate events;
    - Assessing, interpreting and evaluating outcomes of research;
    - Developing new concepts and ideas to extend intellectual understanding;
    - Resolving problems of meeting research objectives and deadlines;
    - Developing ideas for generating income and promoting research area;
    - Developing ideas for application of research outcomes;
    - Deciding on /following research programmes and methodologies, often in collaboration with colleagues and sometimes subject to the approval of the head of the research programme on fundamental issues.
2. To contribute to teaching and learning programmes in the School and to supervise postgraduate research students.
3. To act as research team leader including:
    - Mentoring colleagues with less experience and advising on their professional development;
    - Coaching and supporting colleagues in developing their research techniques;
    - Supervising the work of others, for example in research teams or projects;
    - Developing productive working relationships with other members of staff;
    - Co-ordinating the work of colleagues to ensure equitable access to resources and facilities;
    - Dealing with standard problems and help colleagues to resolve their concerns about progress in research.
4. To routinely communicate complex and conceptual ideas to those with limited knowledge as well as to peers using high level skills and a range of media and to present the results of scientific research to sponsors and at conferences.
5. As determined by the nature of the project and at the direction of the PI, to plan, co-ordinate and implement research programme activity including:
    - Managing the use of research resources and ensuring that effective use is made of them;
    - Monitoring and reporting on the use of research budgets;
    - Helping to plan and implement commercial and consultancy activities;
    - Where appropriate, to plan and manage own consultancy assignments.

These are the main expectations that you will encounter in the role; however, this is not a comprehensive list, and you may be required to undertake other duties of a similar level and responsibility as the research landscape and the role develops with your input.

About You:

Competency	Essential	Desirable
Attainments/Qualifications	PhD or equivalent qualification/experience in a related field of study.	Be a nationally recognised authority in the subject area.
Skills and Understanding	Possess sufficient specialist knowledge in the discipline to develop/follow research programmes and methodologies. Record of research output in high quality publications.	
Prior Experience	Experience of managing research projects and research teams.	Experience of undergraduate /postgraduate teaching and supervision. Experience of acting as principal investigator on research projects.
Behavioural Characteristics	Excellent written and verbal communication skills. Able to communicate complex and conceptual ideas to a range of groups. Evidence of the ability to collaborate actively within the Institution and externally to complete research projects and advance thinking. Able to participate in and develop external networks. Able to balance the pressures of research, administrative demands and competing deadlines. An understanding of the importance of equality and diversity within an organisation and a commitment to helping create an inclusive culture.	Able to identify sources of funding, generate income, obtain consultancy projects, or build relationships for future activities.

Expected Selection Process

If you are selected to be considered for this Postdoctoral Research Fellow position, you can expect a flexible selection process involving:

- a 20-minute online interview (via Teams or Zoom) after week commencing 23 MARCH 2026 (expected).
- advance notice of interview questions.
- advance notification of the two or three people who will sit on the interview panel (links to bios & a profile photo), including their role in regard of the panel, i.e. what themes/questions they will cover.
- a 10-minute presentation covering your research experience and achievements which you should pre-record in a style and format of your choice, submitted in an appropriate video file format (.mp4, .wmv, .avi, .mkv, etc.) to r.j.hicken@exeter.ac.uk before the interview.

We are committed to making the selection process accessible to the widest range of interviewees and if you are selected, when our recruitment team contacts you, they will happily discuss adjustments to help you showcase your skillset to the best of your ability during the interview – for example, flexible dates and times for interviews to fit your commitments, including a shorter or longer interview session.

Expected Support if You Secure the Role

If you are successful in securing the role, you will receive a full induction by the research team and have access to sessions with your post-doc buddy (from within the Electromagnetic and Acoustic Materials group) who will be there for you to help you navigate the onboarding process. If you would like, your buddy will help familiarise you with all the support and peer groups available at Exeter (outlined above), and they will introduce you to procedures such as how to navigate university administrative systems (finance, IT, conference travel, cycling to work, etc.), as well as physics-based processes like the booking of equipment, and use of software. You will always have the opportunity to discuss flexible working arrangements from the moment you secure the role offer and throughout your time here at Exeter.

Your line manager will work with you to identify a suitable start date which considers your needs. You **may** be offered financial assistance with your relocation to an address that is closer to Exeter's Streatham Campus. Read more about the University of Exeter's Relocation Assistance Scheme.

Informal Enquiries

If this sounds like a good fit and you want to know more, or if you are interested in the project but are unsure if your current experience is a good match, we strongly encourage you to contact the supervisor directly: **Prof R. J. Hicken** by telephone **44-1392-264153** or email **r.j.hicken@exeter.ac.uk**. They will be happy to discuss any technical queries or questions specifically about the post, or the working environment in their research group and the wider department.

Terms & Conditions

Our Terms and Conditions of Employment can be viewed here.

Further Information

Please see our website for further information on working at the University of Exeter.