

ABOUT THE HENRY ROYCE INSTITUTE (ROYCE)

Royce is the UK's national centre for research and innovation for advanced materials and was set up through an initial investment of £260m from The Department for Business, Energy, and Industrial Strategy (BEIS) via The Engineering and Physical Sciences Research Council (EPSRC).

Royce was established to ensure that the UK remains at the forefront of materials research and exploitation through collaborations with industry and academia, and by providing access for the UK materials community to state-of-the-art equipment and facilities. Royce's research tackles some of the most pressing challenges facing today's society, from providing energy for future cities to decarbonisation and new recyclable materials. Our materials facilities and research expertise are available to academia and industry alike.

We believe that collaboration between our researchers and industry will create real solutions to global grand challenges and provide significant societal and economic benefit to the UK.

Royce brings together world-leading academics and technical capabilities from across the UK and works closely with industry to ensure translation and commercialisation of fundamental research. With its hub at The University of Manchester, the Institute is a partnership of 11 leading institutions – the universities

of Cambridge, Cranfield, Liverpool, Leeds, Oxford, Sheffield, Strathclyde, and Imperial College London, plus the UK Atomic Energy Authority and National Nuclear Laboratory. Royce coordinates over 700 academic, technical and research staff and over £300m of facilities, providing a joined-up framework that can deliver beyond the current capabilities of individual partners or research teams. As the Institute transitions from a set-up to operational phase, it has established a clear vision around Advanced Materials for a Sustainable Society.



Royce's Vision and Mission

Royce's **vision** is founded on national needs and priorities: *To be a world-class institute stimulating the innovation of advanced materials research to support sustainable growth and development.*

Meeting this ambition demands output of high-impact research achieved through excellent people, cutting-edge infrastructure, and further development of the ecosystem to stimulate the translation of research

through the value chain. Our **mission** is: *To support and grow world-recognised excellence in UK materials research, accelerating commercial exploitation, and delivering positive economic and societal impact for the UK.*

Royce delivers its mission through four pillars of activity that support both industry and academia:

 Enabling national materials research, collaboration, foresighting and strategy: Working to shape our materials research landscape by convening and connecting the UK materials community, engaging with government and policy-makers, and bridging industrial sectors to ensure maximum impact from the UK's research endeavour.

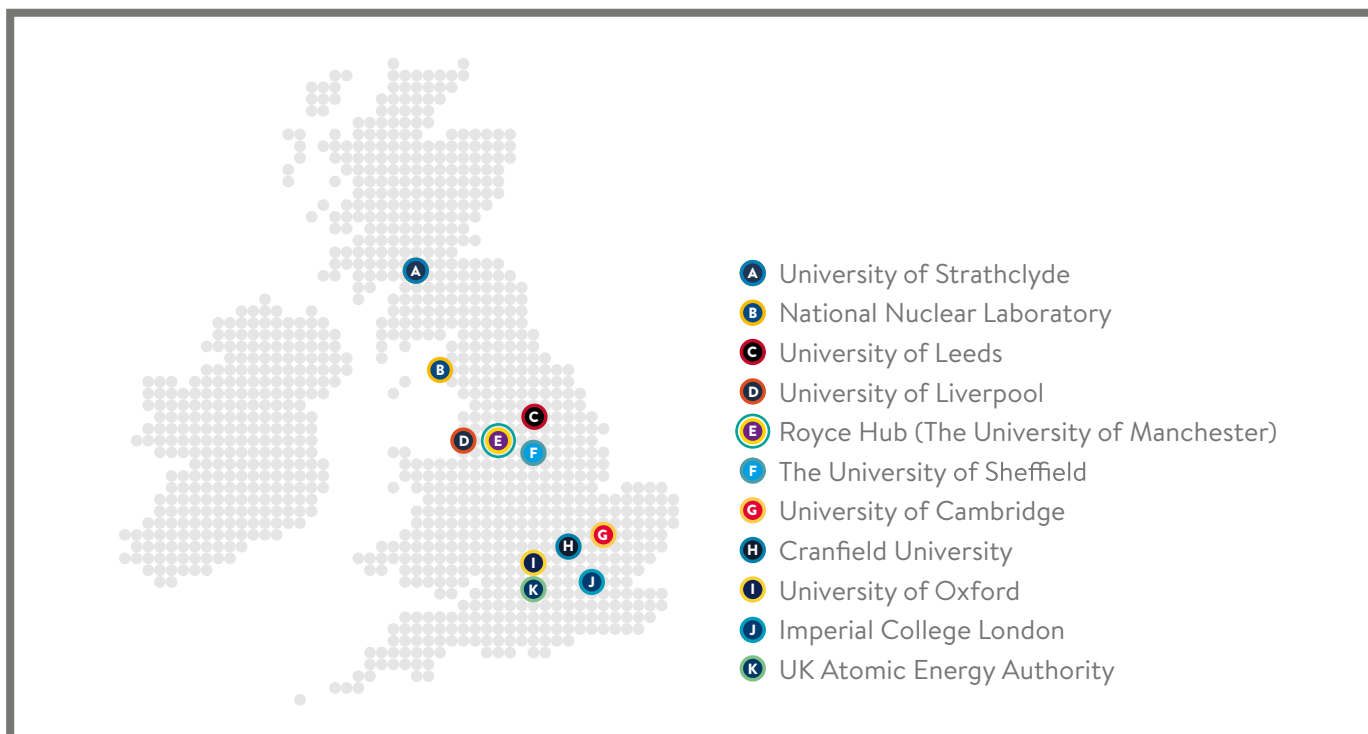
 Providing access to world-leading facilities and research expertise: Providing fast and flexible access for the UK research community to cutting-edge equipment and highly-skilled technical staff to enable high-impact research and innovation.

 Catalysing industrial collaboration and accelerating translation: Implementing programmes and interventions that meet the challenges of advanced materials translation throughout the value chain, from start-ups to SMEs and corporates.

 Fostering materials science skills development, innovation training and outreach: Providing professional development to empower the next generation of materials researchers and leaders with technical and business skills through a comprehensive support and outreach programme.

These activity areas are underpinned by a culture and identity that is flexible, inclusive and collaborative, incorporating both industry and academia in the advanced materials community within and outside of the UK.





Royce Infrastructure & Facilities

Royce funding has supported a significant investment in new advanced materials research infrastructure and equipment across Royce Partner locations. These facilities provide an open and collaborative environment for cutting-edge materials research and innovation. New buildings and equipment in which EPSRC capital has been instrumental include:

ROYCE HUB BUILDING, MANCHESTER

Together the Royce Hub Building and new equipment represents an EPSRC investment of £150m. The flagship building has been designed to foster world-class collaborative research in advanced materials.

SIR MICHAEL UREN HUB, IMPERIAL

Royce funding has been invested in Imperial's recently completed Sir Michael Uren Hub building, in which Royce occupies the eighth floor.

ROYCE DISCOVERY CENTRE and ROYCE TRANSLATIONAL CENTRE, SHEFFIELD

The Royce Discovery Centre features specialist laboratories, workshops and office spaces focused on early-stage materials discovery and processing.

MAXWELL CENTRE, CAMBRIDGE

Royce has invested £10m in facilities at the Maxwell Centre which address energy generation, storage, and use.

REX RICHARDS BUILDING, OXFORD

The recently refurbished Rex Richards building is set to be home to ~1000 m² facilities for air-sensitive energy storage materials. Battery materials and modelling research groups will be housed across four dedicated Royce floors.

MATERIALS RESEARCH FACILITY, UK ATOMIC ENERGY AUTHORITY

UKAEA's Materials Research Facility (MRF) at the Culham Science Centre hosts a range of Royce equipment for processing and analysing radioactive samples, including microscopy and mechanical and thermo-physical testing equipment.

NATIONAL NUCLEAR LABORATORY

Capital funding from Royce has enabled NNL to extend its equipment portfolio for both academic and industrial research, including for glovebox micro-Raman spectroscopy, plasma FIB with SIMS capability, hot cell optical

microscopy and thermogravimetric analysis-mass spectrometry equipment for Pu science.

BRAGG CENTRE MATERIALS RESEARCH, LEEDS

The Bragg Centre for Materials Research is home to an interdisciplinary laboratory space enabling the discovery, creation, characterisation, and exploitation of materials engineered at the atomic level.

MATERIALS INNOVATION FACTORY, LIVERPOOL

Royce has invested £10m in Liverpool's new Materials Innovation Factory (MIF) which is dedicated to the research and development of advanced materials. The site houses one of the highest concentrations of materials science robotics in the world, alongside a suite of advanced analytical equipment.



Our Research

The work of Royce is arranged around eight key thematic areas, each championed by a Research Area Lead and supported by a steering group.

Royce is aligned to the UK government Innovation Strategy which sets out Advanced Materials & Manufacturing as a key technology. Our research has the potential to transform the digital, engineering, energy, and health sectors. Royce's research areas are complementary, and our Partner institutions work collaboratively, sharing facilities and expertise.

Advanced Metals Processing

provides state-of-the-art facilities in a collaborative environment to deliver innovative metals processing technologies and novel alloy solutions. This theme underpins the High Value Manufacturing Catapult network to provide the UK with more sustainable metal supply chains and accelerate the UK metal industry's transition to a resource-efficient, zero-carbon, digitalised and agile future.

Biomedical Materials aims to accelerate the discovery, manufacture and translation of biomedical materials, devices and Advanced Therapy Medicinal Products. This encompasses the additive manufacturing of hard and soft implants, biomimetic tissue analogues, nanofibres to devices, bioelectronics for biosensing, monitoring and stimulation, and biomechanical evaluation. Key drivers are curative healthcare, sustaining health in an aging population, agile and bespoke manufacture, anti-viral and anti-microbial materials and surfaces for a safer world

Atoms to Devices focuses on fundamental research into functional thin film materials. This class of material comprises a rich source of components for consumer electronics and communications. They enable devices for generating energy and reducing energy usage; sensors for the Internet of Things and healthcare; and underpin future implementations of quantum technologies. New materials solutions identified also consider viable pathways for scale-up through prototyping to manufacture.

Chemical Materials Design accelerates the formulation of matter with tailored properties (sustainable, electric, magnetic, catalytic, mechanical, etc.). Materials robotics systems focus on automatic synthesis and formulation of molecular, polymeric, composite and inorganic materials, often guided by data-driven or physical models. This theme also aims to rapidly engineer biological systems for the discovery and manufacture of new materials from biology, to design and evaluate sustainable materials, and to develop sustainable packaging solutions.

Electrochemical Systems focuses on fundamental electrochemistry research and device development to underpin scale delivery of batteries in transport and energy systems, and to drive economic supply of green hydrogen and sustainable chemical feedstocks. The research is supported by the continued development of advanced analytical techniques and simulation tools, from atoms to device level.

Material Systems for Demanding Environments delivers new understanding of performance and degradation of structural materials in application-relevant environments. This enables the development of more accurate life prediction and provides a pathway for new structural materials solutions to improve efficiencies and reduce CO₂ emissions in the transport and power generation sectors. The theme also has a particular focus on developing coatings for extending the operation of structural materials to harsher environments.



Nuclear Materials aims to develop the more resilient structural materials needed to withstand the high heat loads and intense radiation environments for fission and fusion; to develop advanced fission fuels more tolerant of severe accidents, both improving safety and allowing simplification of reactor designs; and to develop the materials needed to enable plutonium reuse in fuel and/or disposal as waste.

Two-Dimensional Materials (2DM) focuses on the smart design of functional materials using atomically thin layers as building blocks, exploiting complementary functionalities of different 2DM layers within a few-nanometre thick heterostructures for high-performance electronics and novel devices and systems for low power-consuming ICT systems. It also exploits 2DM in nanocomposites enhancing properties of materials for use in UK's energy, automotive and aerospace sectors.

The **Modeling and Simulation** cross-cutting research area supports researchers across academia and industry to access the power of materials modelling in understanding and improving materials. We support researchers who use modelling and simulations themselves, but also provide a route for new collaborations between industry and academia or between simulation and experiment.

The **Imaging and Characterisation** cross-cutting research area provides and supports access to the cutting-edge techniques applicable across the entire scope of Royce's research areas. This includes the specific expertise needed to describe and quantify the structure and properties of such a broad range of advanced materials.

Roadmapping & Landscaping

Royce has launched a major roadmapping exercise which targets a number of pressing National Materials Challenges and which is designed to stimulate and drive new advanced materials research in the UK. The objective is to bring together the UK materials community to discuss, analyse and assimilate opportunities for emerging materials research that will lead to economic and societal benefits.

There is a growing recognition that highly functional, next generation advanced materials are central to delivering the new technologies needed to meet the challenges we face to achieve a clean-energy future. These roadmapping and landscaping activities will consult

widely with the materials community through a series of professionally facilitated workshops and interviews.

The results will be made publicly available and will identify and prioritise materials research needs for both policy makers and the research community.

Further information about our roadmapping activities can be found [here](#).

Technology Translation

Accelerating materials innovation and translation is a core part of Royce's mission to help drive economic and societal benefits from the UK advanced materials sector.

There are several excellent examples of technology translation across the existing Royce Partners. Royce is seeking to complement and build on existing strategies and activities by addressing recognised deficits and making stronger connections between the key players in the innovation ecosystem where our influence, resources and capabilities can make a significant difference.

Our strategic objectives are as follows:

- Identify tactical opportunities for innovation through foresighting activities and accelerate promising materials technologies by facilitating timely access to Royce capabilities and resources to solve problems for industry, especially the SME and start-up community.

- Invest in pilot initiatives that address the promotion and fast-tracking of materials innovation in high-priority areas of importance for economic growth and societal benefit.
- Build on our regions of best practice and develop a culture that is open and supportive of efforts to translate research into commercial opportunities and deliver impact.

An example of a nascent initiative in this area is MATcelerate ZERO – a multiple TTO initiative supported by Royce. It is focused on materials that could provide valuable solutions for industry to help them achieve their net-zero targets in the required timeframes, based on previous pharmaceutical industry experience. Funding the translation

of such technologies is typically not something that the venture capital industry wish to do at the very early stages, due to the levels of capital required, along with technical and market uncertainty. Hence there is a need to bring in industry investment, guidance and expertise to effectively de-risk new technologies for commercialisation.

THE ROLE

Following the successful delivery of a £260m infrastructure programme, Royce has now transitioned to full operation, underpinned by £100m of funding for the coming five years.

As set out in its vision and mission, Royce will continue to develop new and existing capabilities, stimulate significant research collaborations, provide foresight on national challenges related to materials innovation, and cement its position as a high-impact, national institute with a strong regional footprint. It will further grow its international profile and engagement and will deepen its relationships with UK Government and the broad research community across academia and industry.

Royce has two boards: the [Strategic Advisory Board](#) and the [Governing Board](#). The Strategic Advisory Board, chaired by Professor Jan-Theodoor (JT) Janssen, provides independent advice to the Governing Board and Leadership Team on realising Royce vision, particularly in relation to the operation of Royce facilities and the quality of the institute's scientific outputs. This combined governance structure ensures Royce delivers significant impact for the UK, aligned with its four mission pillars.

Royce is looking to appoint **up to five** new members to its Strategic Advisory Board, to succeed those whose terms of office are coming to an end in mid 2025. Appointments will be made for 3 years in the first instance.

THE PERSON

Successful applicants will be strategic and creative in their thinking, with a successful scientific career and a demonstrable interest in Royce’s vision, mission, and strategy.

The Board’s commitment to its diversity goals will be an important factor in its decision process. Applications are encouraged from groups currently underrepresented on the Board. We are also particularly keen to have representation from early career practitioners in the field, from both industry (in particular the SME community) and academia, who can bring a unique view to the Board.

Candidates will be judged relative to their career stage on the following criteria:

- National/international standing in an area of materials-related research.
- Interest in the promotion of the field of materials science as a whole.
- Understanding and experience of industry-academia collaborations and, where appropriate, commercialisation of materials concepts.

For three of the appointments we are looking for expertise in: Nuclear (fission or fusion), Steel, or Renewable Materials.

We are looking for expertise in any of the ten Royce research areas for the two remaining posts.

Appointees will be expected to attend a minimum of four meetings per year. Each meeting typically lasts four hours and requires two hours of preparation. Members are paid a fee for each meeting they attend and, when attending physical meetings, are reimbursed for travel and subsistence expenses.

Please note that applications from individuals employed by a Royce Partner or Associate institutions cannot be considered.

Diversity

Royce welcomes applications from everyone regardless of age, disability, ethnicity, faith, gender, gender expression, sex, sexual orientation and transgender status. We particularly welcome applications from women and the Black, Asian and Minority Ethnic community, who are currently under-represented on the Board. All appointments will be made on merit, following a fair and transparent process.

HOW TO APPLY

Expressions of interest should be submitted at your earliest convenience via the University of Manchester Recruitment Portal, and in any event by no later than Monday 7 April 2025.

Shortlisted candidates will be notified in **early May 2025** and invited to meet informally with Royce in **mid-May 2025**.

Final interviews are expected to take place in **early June**.

Royce welcomes applications from everyone regardless of age, gender, ethnicity, sexual orientation, faith or disability. We particularly welcome applications from women and the Black, Asian and Minority Ethnic community who are currently under-represented on the Board. All appointments will be made on merit, following a fair and transparent process.

To register your interest in applying for this role, please submit a curriculum vitae (CV) along with a statement setting out your interest in the role and details of how you match the required criteria. Please include the names and addresses of three referees. Referees will not be approached until the final stages and not without prior permission from candidates. In line with GDPR, we ask that you do NOT send us any information that can identify children/family members or any of your Sensitive Personal Data (racial or ethnic origin, political opinions, religious, or philosophical beliefs, trade union membership, data concerning health or sex life and sexual orientation, genetic and/or biometric data) in your CV and application documentation. Following this notice, any inclusion of your Sensitive Personal Data in your CV/application documentation will be understood by us as your express consent to process this information.

Please also remember to not mention anyone's information or details (e.g. referees) who have not previously agreed to their inclusion.

Any personal data will be managed and retained in accordance with The University of Manchester's [Collaborator/Partner Privacy Notice](#), and [Records Retention Schedule](#).

All applications will receive an automated response. All candidates are also requested to complete an online Equal Opportunities Monitoring Form which will be found at the end of the application process. This will assist Royce in monitoring selection decisions to assess whether equality of opportunity is being achieved. Information collated from the Equal Opportunities Monitoring Forms will not be used as part of the selection process and will be treated as strictly confidential.

For a detailed conversation about this opportunity, please contact:

Ian Kinloch
Chief Scientific Officer
ian.kinloch@royce.ac.uk

David Knowles,
Chief Executive Officer
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Kate Thornton,
Strategic Advisory Board Deputy Chair
k.thornton@iom3.org

Terms of appointment

Members of the Strategic Advisory Board will be expected to allocate sufficient time to Royce to discharge their responsibilities effectively. It is anticipated the role will require a minimum of 8 days per annum.

There is modest compensation for your services.

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