University of Nottingham
UK | CHINA | MALAYSIA

Role profile

Job title	Post doctoral researcher	Job family and level	Research and Teaching Level 4a
School/ Department	Department of Mechanical, Materials and Manufacturing Engineering (M3), Faculty of Engineering	Location	Coates Building, University Park Campus

Purpose of role

The purpose of this Postdoctoral Researcher role is to deliver the experimental and data analysis activities within a Game Changers proof-of-concept project with Sellafield Ltd. The role will generate and analyse dielectric measurement data for representative materials, develop and validate robust measurement protocols, assess measurement capability and limitations, and communicate the findings through technical reports and journal publications.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	**Experimental measurement and testing** ▪ Plan and undertake systematic dielectric measurements across representative materials.	40%
2	**Measurement protocol development** ▪ Develop and validate experimental protocols, including repeatability, uncertainty and data quality assessment.	20%
3	**Data analysis and interpretation** ▪ Analyse experimental datasets to identify trends, relationships, discriminating features and measurement limitations.	30%
4	**Research outputs and dissemination** ▪ Prepare technical reports and journal publications presenting the experimental methods, results and key findings.	10%

Person specification

	Essential	Desirable
Skills	▪ Design and execution of experimental programmes for dielectric and electromagnetic materials characterization ▪ Advanced data analysis using MATLAB, Python, LabVIEW, or equivalent software ▪ Statistical analysis of experimental data including repeatability, reproducibility and uncertainty assessment ▪ Ability to independently plan, manage and deliver experimental research activities	▪ Experience of automation of measurement systems and data acquisition ▪ Signal processing and modelling of dielectric behaviour ▪ Scientific writing demonstrated through peer-reviewed publications
Knowledge and experience	▪ Hands-on experience conducting dielectric property measurements of materials (e.g. permittivity, dielectric loss tangent, conductivity) across a range of frequencies and/or temperatures ▪ Experience using vector network analysers, dielectric spectrometers or related instrumentation ▪ Experience developing, validating and documenting experimental measurement protocols ▪ Experience assessing measurement uncertainty, calibration requirements and data quality ▪ Experience characterising heterogeneous, particulate, composite or waste-derived materials	▪ Experience with microwave, RF or electromagnetic sensing techniques ▪ Experience correlating dielectric properties with material composition or processing conditions ▪ Experience working on industry-funded or collaborative research projects ▪ Experience contributing to research bids and funding applications
Qualifications, certification and training (relevant to role)	▪ PhD **awarded or submitted** in engineering, physical sciences or a related discipline ▪ Doctoral research involving dielectric measurements, electromagnetic characterisation, RF/microwave measurements, electrical	▪ PhD in a field related to materials characterisation, dielectric measurement or electromagnetic sensing

	materials characterisation, or sensor development	
Statutory, legal or special requirements	▪ Experience working safely within laboratory environments and following relevant health and safety procedure ▪ Willingness to undertake travel for project meetings, field testing and industrial engagement activities	▪ Experience working within relevant laboratory health and safety procedures

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people	Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
Taking ownership	Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
Forward thinking	Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
Professional pride	Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
Always inclusive	Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others

