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| Job title | Research Fellow (Title will be 'Research Associate' where an appointment is made before PhD is completed) | Job family and level | Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed) |
| School/ Department | PEMC Research Group | Location | Jubilee Campus, University of Nottingham |

Purpose of role

The purpose of this role will be to have specific responsibility for research, for developing research objectives and proposals for a research project in reliability and lifetime characterisation of power electronic components. The person appointed will be expected to plan and conduct work using approaches or methodologies and techniques appropriate to the type of research, and will be responsible for writing up their work for publication.

The person appointed will have the opportunity to use their initiative and creativity to identify areas for research, develop research methods and extend their research portfolio.

| | Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role) | % time per year |
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| 1 | To develop research objectives and proposals for own and/or collaborative research area. | 10 |
| 2 | To plan and conduct research using recognised approaches, methodologies and techniques within the research area. | 20 |
| 3 | To analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area. | 20 |
| 4 | To write up research work for publication and/or contribute to the dissemination at national/international conferences, resulting in successful research outputs. | 20 |
| 5 | To identify opportunities and assist in writing bids for research grant applications. Prepare proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes. | 5 |
| 6 | To build relationships with both internal and external contacts in order to exchange information, to form relationships for future collaborations and identify potential sources of funds and/or opportunities for collaboration. | 5 |

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| 7 | To co-ordinate the operational aspect of research networks, for example, arranging meetings and updating web sites etc and contribute to collaborative decision making with colleagues in area of research. | 5 |
| 8 | To provide support, guidance and supervision to other staff, where appropriate in own area of expertise. | 2 |
| 9 | To supervise undergraduate and/or postgraduate students projects, fieldwork and placements, as appropriate. To participate in the assessment of student knowledge and co-supervise projects at Masters level. | 2 |
| 10 | To collaborate with academic colleagues on areas of shared interest for example, course development, collaborative or joint research projects. | 2 |
| 11 | To plan and manage own research activity and resolve problems, if required, in meeting own/team research objectives and deadlines in collaboration with others. | 5 |
| 12 | To utilise and contribute to organising research resources and facilities, laboratories and workshops as appropriate. | 2 |
| 13 | To make a contribution to teaching, for example through laboratory demonstrations, lectures to postgraduate workshops and/or delivery of Level 1 modules. | 2 |

Person specification

| | Essential | Desirable |
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| Skills | <ul style="list-style-type: none"> ▪ Oral and written communication skills, including the ability to communicate with clarity on complex information. ▪ Ability to analyse and illuminate data, interprets reports, evaluate and criticise texts and bring new insights. ▪ Ability to creatively apply relevant research approaches, models, techniques and methods. ▪ Ability to assess and organise resource requirements and deploy effectively. ▪ Ability to build relationships and collaborate with others, both internally and externally. ▪ ability to work within a multidisciplinary research team and have excellent communication and presentation skills. | <ul style="list-style-type: none"> ▪ Ability to foster a research culture and commitment to learn in others. |
| Knowledge and experience | <ul style="list-style-type: none"> ▪ Knowledge of the fundamental physics underpinning failure in electronic components, and the typical failure mechanisms in electronic components. ▪ Experience using equipment for reliability characterisation of electronic components, e.g.: thermal characterisation of components (thermal impedance measurement); reliability characterisation methods (thermal cycling and destructive/non-destructive evaluation techniques such as SAM, SEM, X-ray tomography). ▪ An awareness of the electronic packaging techniques typically used for power electronic components. ▪ The ability to develop computer models from experimental results using industry standard tools such as MATLAB/Simulink. | <ul style="list-style-type: none"> ▪ Knowledge of electronic system packaging and assembly techniques, and experience using equipment for packaging semiconductors (e.g. soldering, sintering, wirebonding). ▪ Experience using commercial Finite-Element type simulation software for electro-thermal or thermo-mechanical simulation of electrical/electronic systems or components. ▪ Previous success in gaining support for externally funded research projects. ▪ Experience of developing new approaches, models, techniques or methods in research area. |

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| <p>Qualifications, certification and training (relevant to role)</p> | <ul style="list-style-type: none"> ▪ PhD or equivalent in relevant subject area and experience in research area. ▪ OR near to completion of a PhD | |
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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

