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Department	School of Engineering and the Built Environment
Supervisors	Senthilarasu Sundaram
Funding Status	Funded PhD Project (Worldwide)
Application Deadline	14/04/2022
Project Title	Development of Perovskite Solar Cells through 3D Printing
<p>PROJECT DESCRIPTION</p> <p>Perovskite solar cells (PSC) received massive attention due to the efficiency improvement from 3.8% to 25.5% within a decade. It has created notable industrial attention towards the large scale manufacturing of PSC. The industrial scale perovskite solar cells production demanded newer robust technologies. The proposed project will focus on the development of perovskite inks for 3D printing of perovskite solar cells and analyze the scale up challenges in perovskite solar cells. Perovskite ink preparation and its feasibility in the device manufacture and scaling up challenges are the key objectives of this project. The following key objectives will be achieved during the project period</p> <ol style="list-style-type: none">(i) Development and optimization of perovskite inks using colloidal chemistry approach.(ii) Study the rheological properties of the perovskite inks(iii) Printing large scale devices and understanding the degradation mechanisms <p>Academic qualifications</p> <p>A first degree (at least a 2.1) ideally in Chemistry with a good fundamental knowledge of energy materials synthesis and characterisation.</p> <p>English language requirement</p> <p>IELTS score must be at least 6.5 (with not less than 6.0 in each of the four components). Other, equivalent qualifications will be accepted. Full details of the University's policy are available online.</p> <p>Essential attributes:</p> <ul style="list-style-type: none">• Experience of fundamental colloidal chemistry• Competent in perovskite materials synthesis• Knowledge of materials chemistry and characterisation of materials• Good written and oral communication skills• Strong motivation, with evidence of independent research skills relevant to the project• Good time management <p>Desirable attributes:</p> <p>Experience in writing scientific articles for journals and conferences.</p>	
Indicative Bibliography	Click here to enter text.
Funding notes	This project may be funded by a scholarship of the School of Engineering and Built and Environment. Please see School-funded PhD scholarships - RESEARCH AND INNOVATION (napier.ac.uk) for information on the scholarships and how to apply for them.
Enquiries	For informal enquiries about this PhD project, please contact Senthilarasu Sundaram s.sundaram@napier.ac.uk
Web page	https://www.napier.ac.uk/research-and-innovation/research-degrees/application-process

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