



## PostDoc Job Opportunity



DUBLIN CITY UNIVERSITY	First Name	Last Name	email	Institute	Address
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School:	Physical Sciences				
Research Centre/ group affiliation:	National Centre for Plasma Science & Technology (NCSPT)				
Research group/ centre website:	<a href="http://www4.dcu.ie/physics/ssl.shtml/">http://www4.dcu.ie/physics/ssl.shtml/</a> ; <a href="http://www.ncpst.ie/">http://www.ncpst.ie/</a>				

### Brief summary of research group/ centre activity:

The research in our laboratory concentrates on the growth and characterisation of nanostructures of functional oxide materials, such as ZnO, CeO<sub>2</sub>, ZnAl<sub>2</sub>O<sub>4</sub> and Cu<sub>2</sub>O. These nanostructured materials are grown using both chemical bath and vapour phase transport techniques, in addition to nanostructuring techniques such as nanosphere lithography and are intended for application in areas such as photovoltaics, including dye sensitised solar cells, solarthermal fuel generation and cold-cathode field emission.

### Description of postdoctoral project on offer:

Growth and characterisation of p-type CuAlO<sub>2</sub> for applications in optoelectronics.

This project will explore the possibilities of for high quality, low cost growth of p-type CuAlO<sub>2</sub> films, for applications in optoelectronics. P-type oxide materials are quite rare and the possibility to grow novel, high quality p-type oxide materials opens up applications in heterojunction bipolar optoelectronic devices. Growth methods such as vapour phase transport and chemical bath deposition will be studied to engineer and optimise the material properties and these properties will be studied using a variety of techniques such as electron microscopy, x-ray diffraction and Hall effect measurements. The ultimate goal will be to demonstrate the device potential in a bipolar heterojunction device configuration such as a light emitting diode, in conjunction with collaborators in DCU.

### Please indicate the core skills or disciplines that are required for this position:

Physics, materials science, physical chemistry, electronic and possibly mechanical engineering.