



PostDoc Job Opportunity



DUBLIN CITY UNIVERSITY	First Name	Last Name	email	Institute	Address
PI name & contact details:	Enda	McGlynn	Enda.mcglynn@dcu.ie	DUBLIN CITY UNIVERSITY	Glasnevin, Dublin 9, Ireland.
School:	Physical Sciences				
Research Centre/ group affiliation:	National Centre for Plasma Science & Technology (NCSPT)				
Research group/ centre website:	http://www4.dcu.ie/physics/ssl.shtml/ ; http://www.ncpst.ie/				

Brief summary of research group/ centre activity:

The research in our laboratory concentrates on the growth and characterisation of nanostructures of functional metal oxide materials, such as ZnO, CeO₂, ZnAl₂O₄ and Cu₂O. 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:

Metal oxide/graphene nano-heterostructures.

This project will examine the growth of metal oxide nanostructures with lithographically enhanced light harvesting capabilities on graphene with a view to exploring its potential for applications in photovoltaics [1, 2]. The nature of the growth of lithographically structured metal oxide nanostructures, such as TiO₂, on graphene and especially the properties of the interface, both optical and electrical, have to be established and understood. This project will make use of the expertise of our group in the growth of metal oxide nanostructures using vapour phase transport (VPT) and chemical bath deposition (CBD, which is especially useful for large area growth) and nanostructuring using nanosphere lithography (NSL) methods, in addition to standard optical and structural characterisation [3-5].

[1] K.S. Novoselov et al., Nature 490, 192 (2012).

[2] Y. Yao et al., Nature Communications, 3, article 664 (2012)

[3] D. Byrne et al., Crystal Growth & Design, 10, 2400-2408 (2010)

[4] D. Byrne et al., Nanoscale, 3, 1675-1682 (2011)

[5] D. Byrne et al., Journal Of Physics Condensed Matter, 24, article 215802 (2012)

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

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

Applicants should have an interest in materials physics, materials science and some background in either materials growth and/or characterisation.