

PI name & contact details:	Prof. Vojislav Krstić e-mail: krsticv@tcd.ie
School:	School of Physics
<i>Has project been agreed with head (or nominee) of proposed registration school?</i>	Yes
Research Centre / group affiliation:	Centre for Research on Adaptive Nanostructures and Nanodevices
Research group / centre website:	www.crann.tcd.ie
PI website / link to CV:	www.crann.tcd.ie/Research/Investigators/School-of-Physics/Prof-Vojislav-Krstic.aspx
Brief summary of PI research / research group / centre activity (2 or 3 lines max): Research on electronic transport, magnetoelectrical and -optical properties in novel nanosized and nanostructured materials, comprising magnetic-field- and temperature-dependent experiments. Materials investigated: Ge & InAs nanowires, graphene, chiral nano-metals, carbon nanotubes	
Title & brief description of PhD project (suitable for publication on web): Title: "Magneto-/spintransport in doped carbon nanotubes" Doped carbon tubes are expected to show enhanced magnetic-/spin-coupling of charge-carriers and recent experimental work of the group has demonstrated the existence of a long-range magnetic interaction between isolated phosphorous-dopant sites (substitutional doping) in single-walled carbon nanotubes. Generally, substitutional dopants are considered to be best suited to mediate increased magnetic-/spin-coupling of charge-carriers within carbon nanotubes. The spin-polarised charge and spin-current transport is to be investigated in B-, N-, and P-doped carbon nanotubes. This implies that the spin-valve effect is to be investigated as well as non-local spin-current-measurements are to be carried out, including their gate-dependence, to determine spin-transport relevant parameters. This comprises experimental work in nano-device fabrication (lithography) using individual tubes, structural characterisation (scanning-force and -electron microscopy), and electrical measurements in magnetic fields within the temperature range from 300 K down to a few ten mK.	
Unique selling points of PhD project in TCD: - the candidate will be exposed to current state-of-the-art lithography techniques and techniques for electrically contacting a wide range of nano-materials - the candidate will work on a state-of-the-art dry cryogenic system with integrated superconducting magnet and be trained in the cryogenic and vacuum techniques. The PI's laboratory is the first and only laboratory in Ireland with such a system and the expertise to carry out experiments in such ones on single nano-objects - the candidate will be able to interact interdisciplinarily with theory-groups with expertise in this and related fields at Trinity College Dublin - the candidate will be supported by the hosting PI in participating in the Innovation Academy	
Name & contact details for project queries, if different from PI named above: -/-	

Please indicate the graduates of which disciplines that should apply:

Physics

Materials Science

Nanoscience

Ciência sem Fronteiras / Science Without Borders Priority Area:

Please indicate the specific programme priority area under which the proposed PhD project fits- choose only one (tick box):

Engineering and other technological areas	
Pure and Natural Sciences (e.g. mathematics, physics, chemistry)	
Health and Biomedical Sciences	
Information and Communication Technologies (ICTs)	
Aerospace	
Pharmaceuticals	
Oil, Gas and Coal	
Renewable Energy	
Minerals	
Biotechnology	
Nanotechnology and New Materials	X
Technology of prevention and remediation of natural disasters	
Biodiversity and Bioprospection	
Marine Sciences	
Creative Industry	
New technologies in constructive engineering	