

## A 3-year PhD studentship in “Annealing-free hybrid nanomaterials for flexible photovoltaics and optical sensors”

**Supervisors:** Dr. Tung Chun Lee, Prof. Ivan Parkin

Closing Date for Applications: Until position is filled

Start Date: 24 September 2018

Location: London

**Topics:** hybrid nanomaterials, Perovskite solar cells, surface-enhanced Raman scattering

### The Studentship

This position is fully funded by the TCL group together with the Centre for Doctoral Training in Molecular Modelling and Materials Science (M3S CDT) at UCL. The Studentship will cover tuition fees at UK/EU rate plus a maintenance stipend £16,777 (tax free) pro rata for 3 years. **Please note that, due to funding restrictions, only UK/EU citizens are eligible for this studentship.**

### The Project

This PhD project aims to develop novel hybrid nanomaterials that can efficiently harvest light and transport charges, which will synergise with other experimental and modelling effort led by the Lee's and the Parkin's groups. In particular, hybrid nanoparticles of oxides and plasmonic metals will be designed and synthesised based on our in-house annealing-free protocols. Structural parameters, including shape, composition, ligand and material arrangement (e.g. core-shell, Janus), will be investigated and optimised. The resultant nanoparticles will be used to fabricate charge transport layers in flexible Perovskite solar cells, performance of which will then be studied at the full-device level. Meanwhile, these hybrid plasmonic nanoparticles will also be used to make soft optical sensors for on-site detection of biomolecules and explosives.

Please visit the group websites for more details about our research:

<http://tungchunlee.weebly.com/>

<http://www.ucl.ac.uk/chemistry/people/ivan-parkin>

### The Candidate

The successful applicant should have or expect to achieve a 1<sup>st</sup> or 2:1 class integrated Masters degree (MEng, MSci, MChem etc.) in Chemistry, Physics, Materials Science, or a related discipline. The successful applicant will demonstrate strong interest and self-motivation in the subject, good experimental practice and the ability to think analytically and creatively. Good computer skills, plus good presentation and writing skills in English, are required. Previous research experience in contributing to a collaborative interdisciplinary research environment is highly desirable but not necessary as training will be provided.

Please contact Dr. Tung Chun Lee ([tungchun.lee@ucl.ac.uk](mailto:tungchun.lee@ucl.ac.uk)) for further details or to express an interest.

Applications will be accepted until **30 June 2018** but the position will be filled as soon as an appropriate candidate is found.