

## PhD Scholarship in 2D materials as photocatalysts for H<sub>2</sub> production – An experimental investigation

**Description:** This will be a fully funded studentship for an applicant who is keen to conduct research into the manufacture of 2D nanomaterials for green hydrogen production.

In response to advancing climate change and the energy crisis, urgent measures are required to minimize our need for fossil fuels and progress the transition towards a low carbon economy. Solar energy delivers a sustainable solution. Photocatalysis, for instance, can readily harness freely available solar energy (in the presence of a catalyst) to generate hydrogen and oxygen by the splitting of water.

This PhD project will focus on the design and development of low-impact and sustainable 2D materials using a tuneable, cleaner, single step and environmentally friendly synthetic process. The research will take an integrated approach. It involves design, engineer, and validate high-performance 2D nanomaterials for green hydrogen production. The 2D derivatives will be delivered via an environmentally benign, rapid, and controllable clean synthetic technology (a synthetic process that is at the forefront of nanomaterials manufacturing approaches). The project will make use of research facilities related to Materials Synthesis (CHFS), Characterization (Raman, XRD, AFM, SEM, UV- Vis spectroscopy, steady-state, and time-resolved spectroscopy), H<sub>2</sub> production and testing (solar light simulator and gas chromatography).

This Bursary will cover fees and a £18k stipend per annum for three years. As part of the candidate's academic development, the bursary agreement includes that the successful PhD candidate engages in 4 hours per week student contact time, comprising lab class assistance and extracurricular activity development. If you have any informal query, please email the supervision team directly. We encourage applications from underrepresented groups.

**Supervisory Team:** The successful applicant will be working with a multidisciplinary team. Dr [Suela Kellici](#) in Nano2D Lab ([www.nano2d.co.uk](http://www.nano2d.co.uk)) specialising in 2D materials engineering using innovative techniques. Dr [Tariq Sajjad](#) (expertise in physics of materials and devices), [Professor Steven Dunn](#) (materials engineering and hydrogen production) and [Dr John Buckeridge](#) (materials design and theoretical characterisation). The project will also benefit from industrial support of Edinburgh Instruments. As a PhD student, you will join the [London Centre for Energy Engineering](#) and work alongside new and experienced researchers in a collaborative environment.

Informal enquiries should be directed to Dr Suela Kellici ([kellicis@lsbu.ac.uk](mailto:kellicis@lsbu.ac.uk)). Please send a copy of your CV with a covering letter directly to Dr Kellici before applying.

**Requirements:** Applicants must be of outstanding academic merit and should have (or be expected to gain) either a 1st class Honours degree or an upper second class (or the international equivalent) or an MSc with distinction in a related field such as Chemistry, Materials Science, or Engineering related disciplines.