

## **IMPEE PhD Opportunity**

Project title: Hybrid-manufacturing processes for nanofabrication  
Supervisor(s): Dr Jining Sun

### **Abstract**

This project aims to develop a robust hybrid manufacturing approach which is capable of fabricating nanostructures over a large area with high throughput.

Advanced devices based on novel nanotechnologies have been extensively studied in many research areas over the last decade. Compared with conventional devices, these micro- and nano-devices can offer superb performance, relying on micro- and nano-structures that generally serve as the most critical parts. However, the lack of cost-effective nanofabrication methods capable of producing structures in such a small scale over a large area has become the bottleneck of bringing these technologies closer to the public.

The proposed machining method is based on nanoscale diamond cutting tools to produce 2D and 3D nanostructures. These structures can be replicated over large area through proper imprinting methods. This project will focus on the key issues surrounding the hard mould fabrication, the imprinting methods and the substrate materials.

### **Requirement**

We are seeking an enthusiastic student with appropriate background and a good first degree (2.1 or 1st class honours) and/or an appropriate Masters level qualification in a relevant field such as physics, mechanical engineering, or chemistry. Critically, this research involves both very practical experimental aspects (micro-/nano-fabrication and characterization techniques) and theoretical considerations (finite element analysis, Monte Carlo simulation). Candidates with strong quantitative skills and a record of excellence in scientific publishing are especially encouraged to apply.

Other info

Please email a CV, a cover letter describing research interests & experience, and the names and addresses of two referees to Dr Sun (Jining.Sun@hw.ac.uk).