

PhD studentship

Project title: Nanocrystal-polymer nanocomposites: Synthesis and applications

Host institution: University of Southampton

Partner institution: University of Surrey

Supervisors: Dr. Antonios Kanaras (Southampton) and Prof. Joseph L. Keddie (Surrey)

Description of the project

This project will focus on the chemical synthesis of strategically designed semiconductor colloidal nanoparticles and their incorporation into polymers and oligomers. Doping of polymers with nanocrystals is a cutting-edge area of research because it can allow the ‘tuning’ or ‘combining’ of the properties of nanocrystals and the polymer (e.g. mechanical and electrical) in a novel nanocomposite material. Such nanocomposites could be used in a variety of applications, ranging from sensors and detectors to strong adhesives and thin-film solar cells.

The successful candidate must have a good degree (upper second-class or better, or its international equivalent) in Chemistry, Materials, Physics or Physical Chemistry and the appropriate knowledge of English, as defined by University regulations. He/she will be enrolled at the University of Southampton where he/she will chemically synthesize and characterize a vast range of novel, semiconductor nanoparticles with controlled shape and size. He/she will make frequent visits to the University of Surrey to create the nanocomposites and to perform physical measurements.

Successful completion of this project will produce a number of high impact publications and will lead to commercially interesting products. The successful candidate will interact with an enhanced network of scientists within the two universities, will travel to conferences, and will gain high expertise in nanoparticle synthesis, in a number of characterization techniques (AFM, SEM, TEM, XRD, spectroscopy), as well as in the electronic and mechanical analysis of nanocomposites.

This studentship is funded by the South East Physics Network (SEPNET) programme, which will cover the student fees for a UK or a European citizen as well as the salary, which will be (according to the standard regulations) £12,940 per year, tax-free. The studentship will be normally offered for three years.

To express your interest please send your CV to Dr. Antonios Kanaras (ak3w07@soton.ac.uk).