UNIVERSITY OF CAMBRIDGE

Department of Materials Science & Metallurgy

Open positions: Two for graduate students and one for a post-doctoral fellow

(Internationally competitive salaries/student stipends/support)

Cambridge University, Department of Materials Science and Metallurgy

Dr. Stoyan Smoukov, Head, Laboratory for Sustainable Actuator Materials

Post-doctoral applicants should contact Dr. Smoukov by email at: sks46@cam.ac.uk. Interested students are welcome to email for details but their applications should be submitted directly at the link below.

Interested EU students should apply before Jan 20, 2012 (for starting October 2012), and specify interest in the research of Dr. Smoukov. Non-EU students can only apply for next year (October 2013), unless they have independent financial support, as the deadlines for supplemental scholarships, such as the Cambridge Trusts, Gates scholarships have passed. Electronic graduate school applications to Cambridge should be submitted at the link below: http://www.admin.cam.ac.uk/offices/gradstud/prospec/apply/ Paper application is attached for reference, but electronic one is preferred.

Research in Bio-Inspired Adaptive and Autonomous Materials for Sustainable Energy

Research in my group will be in functional materials with two main complementary focus areas: energy production and sustainable energy use. For sustainability, we will develop bioinspired responsive materials and architectures, which would store energy, release it on demand, and act as life-like, efficient, and autonomous entities. We will design such autonomous devices from synthetic materials based on novel fabrication techniques, including microfluidics, hierarchical structures, and 3D scaffolds.

We will also explore significant opportunities in energy production, specifically, multi-exciton photovoltaics and catalysis. Fundamental questions we will address in the research include: polymer phase separation, tailoring nanoscale morphologies and compositions for efficient dissociation of photogenerated excitons. We will use novel scalable methods we have developed for producing nanofibers, and will work to develop nanofibers with controlled molecular crystallinity, porosity, composition and diameter distribution. Efficient production of nanofibers is expected to bring revolutionary advances to many fields of science and technology, including catalysis, filtration, protein separations, foods, flexible electronics, and tissue engineering.

Bio-inspired designs will be explored in both research thrusts, with particular emphasis on active and adaptive materials. Increasing energy production is a worthy research goal, but the main focus will be on finding smarter ways to use it. Adaptive responses of plants and animals will be investigated.