Post-Doctoral Researcher / Scientist

Synthesis and Characterisation of Up-converting Inorganic Nanomaterials

Job Description:
The “Nanophotonics for Energy” division was established at KIT in April 2014 within the Institute of Microstructure Technology (IMT) and the Light Technology Institute (LTI). We have access to all of the state-of-the-art research facilities within the National Research Centre of the Helmholtz Association. We are currently looking to employ a post-doctoral scientist to expand our capabilities within our Third Generation Photovoltaics group based around “Synthesis and Materials Characterisation of Up-converting Inorganic Nanomaterials”. This research would be conducted within the framework of a very close collaboration with a German industry partner and working as part of a small team on this R&D project.

This field of research covers encompasses:
• Synthesis of lanthanide doped oxides, fluorides and other host materials for up-conversion (UC) – both as micron-sized powders as well as nanocrystals;
• Exploring a wide range of dopant ions and concentrations;
• Understanding the role of defects in quenching of the photoluminescence, as well pursuing methods for reducing the number of defects;
• Attaching ligands and organic dyes to nanocrystals for sensitisation;
• Encapsulation of nanocrystals in polymer hosts and solid sample preparation;
• Characterisation of material quality (XRD, XPS, Raman/FTIR, electron microscopy etc.) as well as investigating stability and some optical measurements;
• Correlation of material quality with UC performance.

Generally, this involves the setting-up of required equipment for synthesis, as well as detailed experimental planning, and synthesizing a wide range of UC materials. Given the very close cooperation with industry, being able to deliver to tight deadlines, good time management, as well as excellent written and oral communication skills are essential. Experience in publishing in high-impact journals as well as writing concise reports is critical, while a familiarity with the patenting process would be an advantage. The successful candidate will be able to conduct research independently, as well as being able to work within a small team to deliver on the required project milestones.

Qualifications: PhD in Chemistry / Materials Science or equivalent
You have completed a PhD and demonstrated independent research skills through publication in peer reviewed international journals, giving oral presentations at international conferences. Ideally you will be familiar with the preparation of research funding proposals. Experience with inorganic nanocrystals synthesis as well as more typical micro-size powders, ligand formation on nanocrystal/nanoparticles, materials characterisation as well as some optical spectroscopy will serve as a good foundation to the position.

Affiliation:  KIT – Institute of Microstructure Technology (IMT) – Nanophotonics for Energy

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76344 Eggenstein-Leopoldshafen, Germany
http://www.imt.kit.edu/1291.php

Deadline: Applications will close 27 April 2015

Duration: Three years

Salary: Remuneration shall be based on the Collective Agreement for the Public Service Sector.

Start Date: 1 June 2015

Contact: Prof. Dr. Bryce S. Richards, Tel: +49(0)721/608-26562, Email: Bryce.Richards@kit.edu, Professor of Nanophotonics for Energy - Faculty of Electrical Engineering and Information Technology, Co-Director of both Institute of Microstructure Technology (IMT) and Light Technology Institute (LTI)

Applications: Please make sure all of the following documents are supplied within an application: i) up-to-date CV, ii) publication list, iii) degree certificates, iv) academic transcripts, and v) contact details for three references.