



In collaboration with



Three fully funded PhD positions (ME-SK032013) Fall 2013

Multiscale Modeling & Simulation (M²S) Group at Masdar Institute (MI) is seeking suitably qualified candidates for MS positions. At M²S, we concentrate our research efforts in the broad area of Solid Mechanics applied to Multiscale Modeling of advanced engineering materials and structures. At M²S, we undertake multi-disciplinary research in order to understand the mechanical and functional response of materials and structures at various spatial & temporal scales through theoretical & computational modeling and simulation. This approach is combined with experiments. Current research focuses on novel concepts that combine materials, mechanics and physics to produce multifunctional systems. We are currently looking for candidates for the following research projects (some of these will be jointly carried out with MIT collaborators). All these projects involve analytical and computational modeling, prototyping using 3D printing and experimental evaluation.

- Micromechanical modeling of Nano-silica particle tailored adhesive interfaces
- Multi-scale and microstructure evolution modeling of thermal barrier coatings
- Bio-inspired joining solutions for composites
- Strengthening, repair and life-extension strategies for composite structures
- Modeling and design of nacre-like composite structures
- Modeling and design of microstructure of gas turbine materials
- Mechanics of stretchable electronics; Packaging solutions
- Micro- and Nano-composites

Eligibility: Candidates with a Masters in Mechanical Engineering, Materials Engineering, Aerospace Engineering, Civil Engineering or any related field with a background in Mechanics of Solids, Structures and Materials are encouraged to apply. Programming skills in FORTRAN and/or C++ is a must. Experience in ABAQUS-UMAT coding and experimental skills is desirable.

PhD positions provide excellent opportunity for collaboration with research groups at MIT (with an opportunity to spend up to one year at MIT) and an excellent compensation package (full tuition, health benefits, accommodation and monthly stipend). Please send your queries via email with a CV including the GRE (quantitative score > 155 (or 700)) and TOEFL (above 91) scores and with publications (if you have any) as a single PDF document, clearly indicating the

position you are applying for in the subject line to Dr. S. Kumar, Mechanical Engineering, Masdar Institute of Science & Technology, Abu Dhabi, UAE. Email: s.kumar@eng.oxon.org. Once you submit the online application which is available on our website www.masdar.ac.ae, you will be notified about the pending documents and the status of your application. The deadline to submit all documents to complete your application is **31st of May 2013 for Fall 2013 admission**. Please note that your application will only be evaluated if it's complete along with all the supporting documents. Please contact Student enrollment manager at Masdar (rorfali@masdar.ac.ae) if you need any further information. Masdar Institute may under certain circumstances consider waiving GRE requirements for highly-qualified applicants.

About **Masdar Institute of Science and Technology**

Masdar Institute (www.masdar.ac.ae) is the world's first graduate-level university dedicated to providing real-world solutions to issues of sustainability. The Institute's goal is to become a world-class research-driven graduate-level university, focusing on advanced energy and sustainable technologies. The Institute, which was created in collaboration with the **Massachusetts Institute of Technology (MIT)**, integrates theory and practice to incubate a culture of innovation and entrepreneurship, working to develop the critical thinkers and leaders of tomorrow. The goal of the Institute is to develop, over a period of years, indigenous R&D capacity in Abu Dhabi, addressing issues of importance to the region in critical areas such as: renewable energy, sustainability, environment, water resources, microelectronics and advanced materials. The Institute offers graduate degree programs (MSc & PhD) in science and engineering disciplines with a focus on advanced energy and sustainable technologies. Masdar Institute is situated in Masdar City (www.masdar.ae), an emerging global clean-technology cluster that aims to be one of the world's most sustainable urban developments, powered by renewable energy and providing students and researchers with a unique opportunity to live and learn in a true "living laboratory" environment.