Post-doctoral positions available

The Molecular Thermodynamics Group of the Chemical Engineering Program of Texas A&M University at Qatar (TAMUQ) has three (3) immediate openings for post-doctoral research associates to work on the following projects:

1. **Development and Validation of Molecular-Based Models for the Prediction of Thermodynamic and Transport Properties of CO₂–Brine Mixtures.** The project refers to the development of a molecular-based equation of state for the reliable prediction of thermodynamics and phase equilibrium properties of CO₂–brine mixtures over a broad range of temperatures and pressures relevant for geological storage.

2. **Gas Storage and Transportation, and Separation Process Development Based on Hydrates.** In this project, molecular thermodynamics and molecular simulation models will be developed and validated related to the use of hydrates for separation of gas mixtures for oil & gas applications, such as natural gas purification, capture of CO₂ from industrial streams, and separation processes in oil refineries and petrochemical industries.

3. **Molecular Modeling and Prediction of Thermodynamic Properties of Metal-Organic Frameworks (MOFs) for CO₂ Separation.** This project focuses on generating and validating molecular-based models and methodologies to allow for accurate calculation of microscopic structure based on chemical constitution of the MOFs and subsequent prediction of the macroscopic properties of interest over a wide range of conditions.

Ideal candidates are expected to have:

- A PhD degree in Chemical Engineering, Physics or Physical Chemistry with emphasis to molecular thermodynamics (for projects 1 and 2) or molecular simulation (Monte Carlo and/or Molecular Dynamics methods, for projects 2 and 3),
- Excellent programming skills in Fortran or C / C++,
- A proven track record of successfully delivering complex software development projects,
- Strong cross-platform development skills (Linux, Windows) using modern toolkits. Appreciation for open-source development tools is a plus,
- Good interpersonal communication skills.

The positions are based in Doha, Qatar, under the supervision of Professor Ioannis Economou. The projects involve collaboration between TAMUQ and Princeton University, USA (Prof. A.Z. Panagiotopoulos) for project 1, and between TAMUQ and National Center of Scientific Research “Demokritos” in Athens, Greece (Dr. A. Stubos) for projects 2 and 3.

The post-doctoral research associates are expected to be involved in teaching and other educational activities, including supervision of senior undergraduate and graduate students.

The positions are available immediately, for an initial period of one year that can be extended further based on progress. Salary depends on qualifications and previous experience and is in the range of USD 3,000 – 4,000 monthly. In addition, housing and health insurance will be provided by the University.

Interested candidates should contact Professor Ioannis Economou at ioannis.economou@qatar.tamu.edu. The complete application should include a detailed CV, 3 suggested names for letters of reference, and copies of undergraduate and graduate transcripts.
INFORMATION ABOUT TEXAS A&M UNIVERSITY AT QATAR

Texas A&M University at Qatar (TAMUQ) was established in 2003 in the Education City, Doha. The main campus is in College Station, Texas, USA. TAMUQ offers B.Sc. degrees in Chemical, Electrical, Mechanical and Petroleum Engineering and M.Sc./M.Eng. degrees in Chemical Engineering. Today, it has approximately 500 students and around 80 faculty members. The Chemical Engineering Program consists of 12 faculty members and an increasing number of post-doctoral fellows and visiting Ph.D. students. Chemical Engineering has state-of-the-art experimental infrastructure and a high performance computer cluster with 2048 cores. Research is structured around the areas of energy and fuels processing, catalysis, water and environmental engineering, process systems engineering and process safety engineering. The current on-going external funding sums up to approximately $25 million. Qatar National Research Fund is the primary source of funding while substantial contribution comes from industry.

Doha is a modern multi-cultural city with a population of approximately 1.5 million people. The Education City is part of the Qatar Foundation, located in the center of Doha and brings together 8 world-class Universities and several high-tech companies.

More information about TAMUQ is available here: www.qatar.tamu.edu and about Qatar Foundation here: www.qf.org.qa.