

## UAE RESEARCH ASSISTANTSHIPS AY17-18

### POSITION DESCRIPTION

**POSITION TITLE:** RESEARCH ASSISTANT IN CHEMISTRY AND MATERIALS SCIENCE

**RESEARCH PROJECT TITLE:** SMART MATERIALS

**FACULTY NAME & TITLE:** PANCE NAUMOV, ASSOCIATE PROFESSOR OF CHEMISTRY

### RESEARCH PROJECT DESCRIPTION

While the energy derivable from renewable sources holds tremendous potential and tops the priority list in the materials research, its practical application requires new materials for energy conversion that would ultimately provide an unlimited power on demand. Fundamentally new concepts for efficient energy conversion and storage hold the key to major advances in the alternative energy technology, which is of societal relevance in facing the challenges imposed by global warming. Elucidation of the basic mechanisms of processes that govern energy conversion is a milestone toward that goal.

**Smart materials** are materials that can respond to multiple external stimuli, such as heat, light or pressure. In this project, the student will work closely with the members of the Naumov's lab to develop, synthesize and characterize new smart materials with new and exciting properties. The student will prepare new smart materials which when heated, exposed to light, pressure or humidity respond with motion. By using diffraction and spectroscopic methods, the molecular and crystal structure of these materials will be determined and correlated with their properties and energy conversion efficiency. The new smart materials will then be used to build small gears to demonstrate the possible applications in practice.

### RESPONSIBILITIES OF THE POSITION

- Design, preparation and characterization of novel smart materials with possible applications in nanotechnology, soft robotics, and biomedical applications
- Active participation in the research activities of the Naumov Research Group, including participation in weekly group seminars

### ESSENTIAL QUALIFICATIONS:

BSc or MSc in chemistry, physics, or related physical sciences.

### PREFERRED EXPERIENCE / SKILLS:

The candidate should be highly motivated and enthusiastic to pursue supervised research work, on a research project assigned by Dr. Naumov. The candidate should have basic practical experience of working in a chemical research laboratory.

**APPLICANTS TO PROVIDE:**

1. Statement of interest in the position
2. Transcript of degree(s)
3. CV
4. Two letters of recommendation