

## **Job Reference: Nano\_R1**

Main research field: Chemistry

Sub-research field: Nanotechnology

### **Job summary:**

REQUIMTE offers Research Positions to do research that will be focused on the synthesis and assessment of the toxicological and biodistribution properties of nanoparticles. The main objective is to study the impact of shape, size, material and surface chemistry of nanoparticles in the toxicological effects of nanoparticles. Applicants should have 2 years' experience at post-doc level and a good publication record.

### **Job descriptions:**

#### **Researcher position**

The work to be developed is the synthesis of metal and metal oxide nanoparticles with controlled size/shape/and surface chemistry, characterization of the nanoparticles, and study of the interaction of nanoparticles with serum proteins. We are seeking highly motivated individuals with proven experience (at a PhD level) in any of these areas and that can contribute to enhance and complement our research interests.

The candidate must have a PhD in Chemistry or related field and preference will be given to candidates that have experience in nanoparticle synthesis and surface modification, as well as characterization techniques for nanoparticles (specially TEM, SEM, AFM, DLS, fluorescence and UV/vis spectroscopy), and in the field of research of the host laboratory. A significant background and experience is expected and will be evaluated according to publications in international refereed scientific journals.

The candidate must have, at least, 2 years' experience as researcher in nanochemistry and is expected to design experiments, write laboratory protocols and procedures, work with collaborators, prepare draft manuscripts and grant applications, and delivering oral presentations. Other responsibilities include the training and day to day supervision of other members of the research group, general management of a shared laboratory and participation in institutional activities. It is also expected a fast and profitable integration in current research projects. Work will be conducted in an excellent environment with state-of-the-art facilities.

## **Job Reference: Nano\_R2\_1**

Main research field: Chemistry

Sub-research field: Nanochemistry and Nanotechnology

### **Job summary:**

REQUIMTE offers Research Positions to undertake research which will be focused on the preparation, functionalization and characterisation of nanomaterials and nanostructured materials for catalytic applications and adsorption/separation. These materials comprise magnetic nanocatalysts, hybrid nanocatalysts prepared by immobilization of homogeneous catalysts onto nanomaterials and porous MOF materials. Applicants should have, as a rule, 2 years' experience at post-doc level and a good publication record.

### **Job descriptions:**

#### **Researcher position**

The main focus will be the design of eco-friendly hybrid nanocatalysts for liquid-phase oxidation reactions using green oxidants and featuring high activity, selectivity and recyclability oxidants and the design of novel crystalline porous MOF materials with improved adsorption properties and gas storage capacity.

We are seeking for highly motivated individuals with proven experience in any of these areas and that can contribute to enhance and complement our research interests. The candidate must have a PhD in Chemistry, Material Chemistry and Chemical Engineering and preference will be given to candidates that have experience in material synthesis, catalysis and characterization by spectroscopic techniques, electron microscopy, surface techniques, powder XRD, thermal methods, and in the field of research of the host laboratory. A significant background and experience is expected and will be evaluated according to publications in international refereed scientific journals.

The candidate must have, at least, 2 years' experience as researcher in material chemistry and is expected to design experiments, write laboratory protocols and procedures, work with collaborators, prepare draft manuscripts and grant applications, and delivering oral presentations. Other responsibilities include the training and day to day supervision of other members of the research group, general management of a shared laboratory and participation in institutional activities. It is also expected a fast and profitable integration in current research projects. Work will be conducted in an excellent environment with state-of-the-art facilities.

## **Job Reference: Nano\_R2\_2**

Main research field: Chemistry

Sub-research field: Nanochemistry and nanotechnology

### **Job summary:**

REQUIMTE offers Research Positions to undertake research which will be focused in the fabrication of high-tech smart textiles for protection and decoration purposes and the fabrication of rigid and flexible electrochromic devices (ECDs) with high performance in terms of stability/durability, contrast ratio and response time. Applicants should have, as a rule, 2 years' experience at post-doc level and a good publication record.

### **Job descriptions:**

#### **Researcher position**

The main focus will be the fabrication of high-tech smart textiles with superhydro/oleophobicity, fire retardancy, thermal insulation, photochromic and/or thermochromic properties through their multifunctionalization with nanomaterials and the preparation of novel electrochromic rigid and flexible devices. We are seeking for highly motivated individuals with proven experience in any of these areas and that can contribute to enhance and complement our research interests. The candidate must have a PhD in Chemistry, Materials Science, and Chemical Engineering and preference will be given to candidates that have experience in material synthesis and characterization by spectroscopic techniques, electron microscopy, surface techniques, powder XRD, thermal methods and in the field of research of the host laboratory. A significant background and experience is expected and will be evaluated according to publications in international refereed scientific journals.

The candidate must have, at least, 2 years' experience as researcher in synthetic chemistry and is expected to design experiments, write laboratory protocols and procedures, work with collaborators, prepare draft manuscripts and grant applications, and delivering oral presentations. Other responsibilities include the training and day to day supervision of other members of the research group, general management of a shared laboratory and participation in institutional activities. It is also expected a fast and profitable integration in current research projects. Work will be conducted in an excellent environment with state-of-the-art facilities.

**Job Reference: Nano\_R3\_1**

Main research field: Chemistry

Sub research field: Nanochemistry

**Job summary:**

REQUIMTE offers a Research Position in the area of Nanochemistry, theme Computer Modelling of Heterogeneous Catalysis. Applicants should have, as a rule, 2 years' experience at post-doc level and a good publication record.

**Job description:****Researcher position**

The main goal will be the rational design of smart catalytic materials, using advanced computational modelling tools. This will involve developing an advanced multi-scale modelling approach starting from electronic structure calculations (e.g.: DFT) proceeding via force-field approaches towards larger systems and longer simulations where the important details are included indirectly, essentially for tackling the water-gas-shift reaction and attempt to propose efficient metal nanoparticles/nanostructured metal oxide catalysts, as well as for understanding the interplay between structure, electronics, and dynamics taking place at the transition metal complexes grafted onto nanoporous supports in catalytic applications.

The successful candidate will be integrated in a multidisciplinary research group actively involved in the design of (1) nanocatalysts for the water-gas-shift reaction and of (2) anchored transition metal complexes with improved enantioselective catalytic activity.

Prospective applicants should hold a PhD degree in Science or Engineering disciplines, with a preference for the areas of Chemistry, Physics, Materials Science, and Chemical Engineering, and have, at least, 2 years' experience as researcher in theoretical modelling of heterogeneous catalysis. It is expected to design experiments, write laboratory protocols and procedures, work with collaborators, prepare draft manuscripts and grant applications, and delivering oral presentations. Other responsibilities include the training and day to day supervision of other members of the research group, general management of a shared laboratory and participation in institutional activities. It is also expected a fast and profitable integration in current research projects. Work will be conducted in an excellent environment with state-of-the-art facilities.

**Job Reference: Nano\_R3\_2**

Main research field: Chemistry

Sub research field: Nanochemistry and Nanotechnology

**Job summary:**

REQUIMTE offers Research Positions to undertake research in the area of Nanochemistry and Nanotechnology, aiming the preparation and functionalization of multipurpose nanostructures to improve performance of analytical methodologies. Applicants may also develop work in flow techniques and flow extraction with analytical purposes. Applicants should have 2 years' experience at post-doc level and a good publication record.

**Job description:**

The multi-disciplinary nature of this work includes different scientific areas namely Physical Chemistry, Physics, Biophysics and Analytical chemistry. We are seeking highly motivated individuals with proven experience in any of these areas that can contribute to enhance and complement our research interests in the area of Nanochemistry and Nanostructured Materials. The main focus will be in the development of immobilized catalytic or biocatalytic units based on nanosized materials. It is required expertise in the preparation and characterization of mesoporous silica matrices and quantum dots that will be assembled in an assortment of solid supports. Experience in working with enzymes, flow techniques and flow extraction with analytical purposes may also be considered.

The successful candidate is expected to design experiments, write laboratory protocols and procedures, work with collaborators, prepare draft manuscripts and grant applications, and deliver oral presentations. Other responsibilities include the training and daily supervision of other members of the research group, general management of laboratory resources and participation in institutional activities. It is also expected a fast and profitable integration in current research projects. Most of the work will be performed in Porto in an excellent environment with state-of-the-art facilities, but visits to other research institutes and universities in Portugal and abroad are encouraged.

Candidates should have research experience equivalent to a PhD in Chemistry, Pharmaceutical Chemistry, Physics and Biophysics. Applicants with documented expertise in the above cited areas will have priority. However, it should be noted that candidates with experience in other related areas and a good track record of publication in peer-reviewed journals, will also be considered.

**Job Reference: Nano\_R4**

Main research field: Chemistry

Sub research field: Nanochemistry

**Job summary:**

REQUIMTE offers a Research Position in the area of Nanochemistry, theme Computer Modelling of Heterogeneous Catalysis. Applicants should have, as a rule, 2 years' experience at post-doc level and a good publication record.

**Job description:****Researcher position**

The main goal will be the rational design of smart catalytic materials, using advanced computational modelling tools. This will involve developing an advanced multi-scale modelling approach starting from electronic structure calculations (e.g.: DFT) proceeding via force-field approaches towards larger systems and longer simulations where the important details are included indirectly, essentially for tackling the water-gas-shift reaction and attempt to propose efficient metal nanoparticles/nanostructured metal oxide catalysts, as well as for understanding the interplay between structure, electronics, and dynamics taking place at the transition metal complexes grafted onto nanoporous supports in catalytic applications.

The successful candidate will be integrated in a multidisciplinary research group actively involved in the design of (1) nanocatalysts for the water-gas-shift reaction and of (2) anchored transition metal complexes with improved enantioselective catalytic activity.

Prospective applicants should hold a PhD degree in Science or Engineering disciplines, with a preference for the areas of Chemistry, Physics, Materials Science, and Chemical Engineering, and have, at least, 2 years' experience as researcher in theoretical modelling of heterogeneous catalysis. It is expected to design experiments, write laboratory protocols and procedures, work with collaborators, prepare draft manuscripts and grant applications, and delivering oral presentations. Other responsibilities include the training and day to day supervision of other members of the research group, general management of a shared laboratory and participation in institutional activities. It is also expected a fast and profitable integration in current research projects. Work will be conducted in an excellent environment with state-of-the-art facilities.