

PHD FELLOWSHIP in
MINERAL-ORGANIC INTERACTIONS AND SELF-ASSEMBLY IN ALKALINE SILICA-RICH
ENVIRONMENTS

A 3-year PhD position is offered at Instituto Andaluz de Ciencias de la Tierra (CSIC/Universidad de Granada) in Granada (Spain) for applicants interested in the following project:

Mineral-organic interactions and self-assembly in alkaline silica-rich environments

PhD Thesis Supervised by Professor Juan Manuel García-Ruiz

The offer

We are offering a 3-year PhD position funded by the ERC Senior Advanced Grant “Pattern formation and mineral self-organization in highly alkaline natural environments”, within the laboratory of Professor Juan Manuel García-Ruiz (Laboratorio de Estudios Cristalográficos) at the Andalusian Institute of Earth Sciences (IACT) located in Granada, Spain. The laboratory of Prof. García-Ruiz belongs to CSIC (Spanish National Research Council) and University of Granada and has an international and multidisciplinary atmosphere with its research focus in crystallization, pattern formation and self-assembly. The laboratory is fully equipped with petrographic, confocal, atomic force and electron microscopies, X-ray diffractometers, several crystallization techniques, and also has fast access to the Centre for Scientific Instrumentation of the University of Granada. The laboratory maintains cooperative relationships with several groups around the world.

The Project

The geochemical scenario during the earliest stage of this planet, when life had not yet appeared, was driven by very different mineral reactions than those appearing and controlling its chemistry later, on a life-driving planet. It has been demonstrated that under the alkaline conditions that very likely appeared during these earliest days of the planet, minerals like carbonate and hydro-oxides interacted with silica to form fascinating complex hierarchically organized structures that may have played a key role in the transition from inorganic to organic (prebiotic) geochemistry. The objective of this PhD thesis is to sample alkaline waters all over the world, to perform laboratory experiments with these natural waters to produce nanostructured complex self-assembled minerals and then to form hybrid materials with organic compounds known to be easily available on a lifeless planet. Further information on the project is available at webpage <http://garcia.ruiz.net/prometheus/>

Qualifications

We are therefore looking for a PhD candidate who is highly motivated to perform basic research, likes fieldwork but also enjoys laboratory experiments and has some background in geochemistry, mineral growth and/or organic chemistry. A Master's degree in Earth Sciences, Materials Sciences or equivalent is mandatory for this position. Excellent communication skills in English will be required. Fieldwork for sampling alkaline waters will be performed in remote places of the world, so the candidate should have a willingness to travel under safe but demanding conditions.

When to apply: Review of applications will begin immediately and continue until the position is filled before June 30th, 2015.

How to apply: Applications, including a two-page motivation letter and a CV with contact information of two potential referees, should be sent to Professor Juan Manuel Garcia-Ruiz (juanmanuel.garcia.ruiz@csic.es).