Description of Postdoc 1:

Postdoctoral Research Associate in Mineral Self-Assembly and Chemical Coupling

Applications are invited for a postdoctoral research position (PRA) funded by the ERC Advanced Grant "Pattern formation and mineral self-organization in highly alkaline natural environments", within the laboratory of Professor Juan Manuel Garcia-Ruiz at the Andalusian Institute of Earth Sciences (IACT) located in Granada, Spain, a joint Research Centre of the National Research Council CSIC, the biggest research institution in Spain, and the University of Granada. The laboratory of Prof. Garcia-Ruiz holds an international and multidisciplinary environment with research focused in crystallization, pattern formation and mineral self-organization. The Laboratory is fully equipped to carry out the project and is integrated within a very dynamic environment, close to the Life Sciences Technological Park of Granada and with direct access to all the facilities of the Scientific Instrumentation Centre (CIC) of the University of Granada.

Description of the job:

The successful candidate will work on revealing the fundamental mechanisms leading to the formation of biomimetic self-assembled mineral structures arising from the chemical coupling of silica and metal precipitation (carbonate/phosphate/hydroxides) in alkaline solutions mimicking geochemical environments. The research includes: a) the synthesis of self-assembled mineral structures as a function of pH, temperature and pressure; b) detailed compositional and morphological characterization at nanoscale by spectroscopic and microscopic techniques of experimental and natural self-assembled mineral structures; c) The investigation of the preservation and modification of biomorph patterns during geological processes that might have affected the geological record of putative primitive-life hosting environments; d) the exploration of the interaction of hydrocarbons and primitive organic compounds with self-assembled mineral structures; e) the investigation of the coupling of geochemical reactions known to yield organic compounds with the geochemical reactions leading to self-assembled mineral structures.

Duration: Funding is available for 1 year in the first instance (starting any time between the first of June and the first of October 2014) with the possibility of extension for another 3 years upon mutual satisfaction.

Requirements:

- A PhD in **Earth Sciences, Physics, Inorganic Chemistry or Material Sciences** with specialisation in **Mineral growth/Materials synthesis**.
- Evidence of research activity -including publications- in relevant topics.
- Experience with materials synthesis and/or mineralogenesis, *in situ* micro-Raman and micro-FT-IR spectroscopy; *in situ* and *ex-situ* X-ray diffraction; knowledge on AFM and optical, scanning and transmission electron microscopy techniques would be an advantage.
- Proven ability to work effectively as part of a collaborative team and independently.
- Excellent oral and written communication skills.
- Adaptability and flexibility to support evolving and constantly changing research needs.
- Demonstration of self-motivation, organisation and a willingness to acquire new skills through training and personal development.
- Capability to supervise PhD students.

Contact details:

Interested candidates should send before the April 15 their CV and two reference letters along with a letter of interest explaining her/his skills and why he/she wishes to join the PROMETHEUS team. Please send all the correspondence to Prof. Juan Manuel Garcia-Ruiz's email: juanmanuel.garcia@csic.es; Phone: +34 958230000; ext. 190201 for additional information about the project see (http://garciaruiz.net/prometheus).