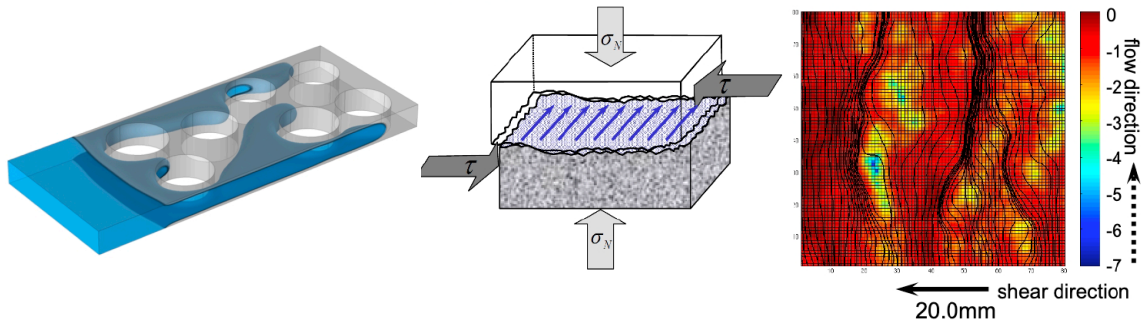


PostDoctoral position in multiphase flow and hydrodynamic transport in permeable media: experiments, data analysis, and simulations



Job description

The University of Barcelona (UB) and the Spanish National Research Council (IDAEA-CSIC, Barcelona) invite applications for a postdoctoral position to study multiphase flow and hydrodynamic transport in permeable media. The position is part of the **HydroPore** project, a joint project between the IDAEA-CSIC, the UB and the Technical University of Madrid (UPM).

The aim of **HydroPore** is to systematically quantify the mechanisms and laws that govern multiphase flow, mechanical deformation and hydrodynamic transport in heterogeneous permeable media across multiple scales, with applications ranging from geothermal energy production and geological storage to contaminant dispersion in groundwater and nutrient transport in tissues. To achieve this goal, the project proposes a multidisciplinary integrated research strategy that combines new theoretical upscaling methodologies with novel experimental protocols and cutting-edge numerical simulation techniques.

In the context of the project, the candidate will study flow, transport and deformation processes in permeable media. This implies building and operation of experimental setups, data collection and analysis, and numerical simulation of detailed processes on the pore and Darcy scales. The processes to be studied include single and multiphase flow and passive transport in spatially heterogeneous media. While the tasks are mostly experimental and numerical, the candidate will be involved also in the theoretical modeling of the processes studied. Results will be published in international scientific journals, newsletters and the social media outlets, and the work will be presented at international conferences and project meetings. The candidate will work in an interdisciplinary team between two organizations in Barcelona.

Qualifications

- A PhD degree in physical, geological or engineering sciences.
- Knowledge and skills in quantitative research, data analysis, and programming.
- Experience in experimental research with a clear view for applications.
- Interest in collaborative multi-disciplinary research.
- The ability to communicate verbally and in written form in English.

Organizations

The **University of Barcelona (UB)** is a student-oriented research university which holds a prominent position on the international research scene. It is the top-ranked university in Spain according to all international rankings, and the only Spanish university represented in the League of European Research Universities (LERU), which comprises the 21 best research-intensive universities in Europe. In the context of HydroPore, a postdoctoral researcher at UB will find a research-intensive, multidisciplinary environment, with faculty and researchers working in soft matter, statistical, chemical, and biological physics. A simultaneous appointment in the new University of Barcelona Institute of Complex Systems (UBICS) will offer the candidate an even wider perspective of forefront research topics and methodologies.

The **Institute of Environmental Assessment and Water Research (IDAEA)** of the Spanish National Research Council (CSIC), is a **Severo-Ochoa** center of excellence. CSIC is the largest public research organization in Spain, and the third largest in Europe. The Institute is devoted to the study of the human footprint on the biosphere. IDAEA is strongly multidisciplinary, with researchers from engineering, physics, environmental, geological, and chemical sciences. The HydroPore research group of IDAEA focuses on the quantitative understanding and upscaling of processes in permeable natural and engineered media.

Conditions of Employment

- **Annual gross salary: 21.600 - 26.400 €, depending on research experience**
- **Full time position**
- **Temporary employment for the duration of 1 year, renewable for 1 additional year**
- **Preferred starting date: April 12, 2021**

Application

If you meet our qualification criteria, you are requested to upload the following documents:

- letter stating your motivation to apply and your key relevant qualities for this position
- up-to-date curriculum vitae
- contact information of two academic references

You may apply for this position until February 14, 2021 by email to the contacts given below. Interviews of shortlisted candidates are scheduled for the second half of February.

Our organizations are equal opportunity employers and value diversity.

Contact

To submit your application or ask for more information, please contact:

- Jordi Ortín, jordi.ortin@ub.edu
- Víctor Vilarrasa, victor.vilarrasa@idaea.csic.es