

## PhD Position on the hydro-chemo-mechanical behavior of cementitious materials from the aggregate to the continuum scale

### Job description

The Spanish National Research Council (IDAEA-CSIC, Barcelona) invites applications for a PhD position to develop a novel multi-scale approach to predict the hydro-chemo-mechanical behavior of cementitious materials from the aggregate to the continuum scale. The position is part of the **MAGIC WP** on Chemo-Mechanical AGIng of Cementitious materials (European Joint programme on Radioactive Waste Management, EJP-EURAD). The research team at IDAEA-CSIC is formed by Dr. Víctor Vilarrasa, Dr. Marco Dentz, Dr. Josep Soler and Dr. Jordi Cama.

We offer a 3-year PhD position for developing a novel multi-scale method and its subsequent application to numerical simulations of multi-scale hydro-chemo-mechanical behavior of cementitious materials (concrete) under repository conditions. The candidate will perform her/his research at the Institute of Environmental Assessment and Water Research, Spanish National Research Council (IDAEA-CSIC) in an interdisciplinary and collaborative environment.

### Qualifications

We are looking for highly motivated and creative individuals with strong analytical and problem-solving skills who are willing to leave their footprint on science. Candidates should hold a MSc in Engineering or Physics obtained within the last 3 years and have good knowledge on programming, solid and fluid mechanics and mathematics. Knowledge on geomechanics and/or geotechnical engineering, hydrogeology and geochemistry will be appreciated. Additionally, we will value scientific publications in international journals and participations in conferences. The candidate will be integrated into an international team, so good communication skills and team working capabilities are required. Excellent level of English, both written and oral, is a requirement.

### Organization

The Institute of Environmental Assessment and Water Research (IDAEA-CSIC) is a Severo Ochoa center of excellence. The institute is devoted to the study of the human footprint on the biosphere. Its scientific personnel have a strong multidisciplinary nature and is formed by researchers from engineering, physics, environmental, geological, and chemical sciences. IDAEA-CSIC is organized in two departments, Geoscience and Environmental Chemistry. The MAGIC WP



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team at IDAEA-CSIC forms part of the Geosciences department and focuses on the development of novel multi-scale methods and multi-scale hydro-chemo-mechanical numerical simulations of cementitious materials (concrete) under repository conditions. IDAEA-CSIC forms part of the Spanish National Research Council (CSIC), which is the largest public research organization in Spain, and the third largest in Europe.

### **Conditions of Employment**

- Full time position, 3 years
- Annual gross salary: ~20.500 Euro
- The preferred starting date is 1 June 2021.

### **Applications**

If you are interested, please send an application, including CV, English certificate, a cover letter describing interests and qualifications related to the position and contact details of two reference people, to Victor Vilarrasa, [victor.vilarrasa@idaea.csic.es](mailto:victor.vilarrasa@idaea.csic.es), before 31<sup>st</sup> of March, 2021. Selection will be performed on the basis of the excellence of the CV and motivation. Our organizations are equal opportunity employers and value diversity.