SERVICE CONSTRUCTION ARCHITECTURE ET URBANISME
DEPARTMENT OF BUILDING, ARCHITECTURE AND TOWN PLANNING
BATir
Campus de Solbosch, building C
Av. A. Buyl 87, CP 194/02
1050 Brussels, Belgium

PHD POSITION ON VOLUME STABILITY OF ALKALI-ACTIVATED MATERIALS

Field: Engineering Sciences
Domain: Civil Engineering

BATir-Civil Engineering (CE) was created in 1981 to foster experimental research on civil engineering materials and structures. Capitalizing on the availability of large testing facilities (1700 square meters) and a longstanding collaboration with the Research Centre of the Cement Industry hosted by ULB, a strong expertise has been developed in the field of testing , instrumentation, analysis of strain and stress in civil engineering cement-based materials and concrete structures, in the lab or in situ.

See web site of the BATir-CE laboratory:

https://batir.ulb.ac.be/index.php/research/research-units/lgc-civil-engineering

Research Project

This PhD research is a part of an interdisciplinary research project “INTERdisciplinary multiscale Assessment of a new generation of Concrete with alkali activated maTerials (INTERACT https://interact.ulb.be/)” that aims at bridging knowledge gaps for alkali-activated material (AAMs), by providing in-depth understanding on the fundamental mechanism of the solidification processes, on rheological properties, on volume stability, and on mechanical properties, which will be coupled with predictive multiscale modelling. This PhD research will perform the task on the volume stability (autogenous behavior, restrained deformations) of AAMs with the aim of characterizing this behavior by means of various experimental tools in order to understand the underlying mechanisms and to develop modelling strategies for the autogenous deformation.

Profile

We are looking for an enthusiastic, creative and communicative researcher with a degree in Civil Engineering, Architectural Engineering, Materials Engineering, Materials Science or equivalent. The candidate should have a strong interest in performing scientific research on alkali-activated materials, and in acquiring new knowledge in experimental tools at several scales (paste, mortar, concrete) like shrinkage, isothermal calorimetry, setting time, coefficient of thermal expansion. Having experience with these research tools is an advantage. The candidate should have distinguished him/herself during the studies (excellent grades, research skills and experience, etc.) and should aim to acquire a PhD degree in the course of four years. The candidate is expected to:

- work independently in an interdisciplinary team in close collaboration with the academic partners;
- report research findings at project meetings organized regularly;
- publish research findings in international conference proceedings and journals;
- have good communication skills;
- have very good oral and written knowledge of English;
- assisting students in their research activities related to Master thesis or research internship in the laboratory.

Offer

The successful candidate will receive:

- a competitive scholarship for a period of 4 years and a PhD degree in Engineering Science if successful;
- multiple benefits (travel insurance, access to university infrastructure and sports facilities, etc.);
- ULB affiliation, one of the largest research universities of Europe;
- opportunity to participate in research collaborations and international conferences;
- full access to research facilities of testing equipment for cement, and high performance computing systems.

Startdate: between June – September 2019.

Interested?

For more information please contact Prof. Stéphanie Staquet e-mail: sstaquet@ulb.ac.be

You can apply for this job no later than May 31st, 2019 via e-mail sstaquet@ulb.ac.be.

ULB seeks to foster an environment where all talents can flourish, regardless of gender, age, cultural background, nationality or impairments. If you have any questions relating to accessibility or support, please contact us at welcome@ulb.ac.be.