



HR EXCELLENCE IN RESEARCH

FORM FOR EMPLOYERS

INSTITUTION	UNIVERSITY OF WARSAW, FACULTY OF PHYSICS
CITY	WARSAW, POLAND
POSITION	POST-DOCTORAL RESEARCHER
DISCIPLINE	PHYSICS
NUMBER OF POSITIONS	1
POSTED	8.03.2018
EXPIRES	19.03.2018
WEBSITE	<u>WWW.FUW.EDU.PL</u>
KEY WORDS	Self-organization, pattern formation, reactive flows, porous media

DESCRIPTION (field, expectations, comments):

The aim of the recruitment is appointment of a postdoc who should perform scientific research (no teaching duties) within the OPUS-11 project entitled " The effect of pore geometry on the dissolution dynamics in porous media" granted by The National Science Centre. The project leader is prof. Piotr Szymczak. The appointment will be at the level of assistant professor in the Department of Modelling of Complex Systems at the Faculty of Physics, University of Warsaw, for the period of 24 months. The project involves analysis of pattern formation in dissolving porous rocks. Strong coupling between the flow and dissolution in such systems may lead to the spontaneous formation of pronounced dissolution channels ("wormholes"). The form of these channels and speed of their advancement depend on the flow rate, reaction rate and porosity difference between dissolved and undissolved mineral, but there is as yet no deeper understanding of the exact form of this dependence. In the project, we will attack this problem by the combination of experiments and numerical modeling. On the experimental level, we will perform acidization experiments on rock samples collected in karst outcrops, where natural dissolution channels are present. The samples will then be analyzed using neutron and X-ray imaging techniques in order to assess the changes in the micro-architecture of the pores

induced by the dissolution. At the same time a numerical model of flow and transport in porous matrix will be constructed. The results of numerical modeling will complement and be validated upon the experimental data. We are thus looking for a motivated postdoctoral fellow who will either have an experimental background and will be willing to interact with theoreticians or a person with a strong analytical/numerical background who will be willing to venture into experimental work. The candidates have to conform to the conditions stated in art. 109 of Higher Education Law dated 27.07.2005. (uniform text: Journal of Laws of the Republic of Poland 2016, item 1842 with further amendments).

The requirements:

The candidate should fulfil the following conditions: (i) hold PhD degree in physical sciences, mathematical sciences, earth sciences or engineering obtained not longer than seven years before appointment, (ii) have a good knowledge of reactive flows in porous media (iii) have experience either in numerical modeling or experimental studies of reactive flows (iv) demonstrate interest in the processes of spontaneous pattern formation in natural systems (v) demonstrate knowledge of English allowing for communication with team members and writing scientific reports.

The candidate should provide the following documents:

1. Application for the position required together with the acceptance for the treatment of personal data: "I hereby give consent for my personal data to be processed for the purposes of recruitment, in accordance with the Personal Data Protection Act dated 29.08.1997 (uniform text: Journal of Laws of the Republic of Poland 2016, item 922)";
2. Motivation letter
3. Copy of the doctoral diploma
4. CV and list of publications
5. Two reference letters

The candidate should deliver all documents up to 19th of March 2018, either directly to the secretary's office of the Institute of Theoretical Physics, Faculty of Physics, University of Warsaw (PL-02-093 Warszawa, ul. L. Pasteura 5, room no. 5.49) or in PDF format sent per email to Piotr.Szymczak@fuw.edu.pl.

The entire recruitment procedure will be concluded by 9th of April 2018r. The candidate might be asked for an interview (also per Skype) with the commission appointed by the Dean of the Faculty of Physics. In this case, the candidates will be informed about the interview date per email.

Each candidate will be informed personally per email about the results of the recruitment procedure.

This announcement is the first step in the procedure of employing an academic teacher and its positive result will be a base for consecutive steps.