Title of the Offer:

PhD position in "Behaviour of natural/synthetic clays exposed to nuclear waste corrosion products in the near-field of a geologic repository for nuclear waste disposal"

Background and Objectives

The management of the nuclear wastes and spent fuel produced by Nuclear Power Plants is one of the challenges that the society must face in the following years. Multidisciplinary approaches must be addressed in order to define a safe fate for these wastes. Radioactive waste management in the EU has its legal basis through the EURATOM treaty and the "Waste Directive" (2011/70/EURATOM). The Joint Research Centre (JRC) is directly contributing to the implementation of this Directive. Their dedicated facilities produce high quality experimental data, aiming at reducing uncertainties associated with safe handling, long-term storage, and final disposal in a geologic repository of nuclear waste, and at implementing safe decommissioning. Universidad de Sevilla (US) and Instituto de Ciencias de los Materiales de Sevilla (ICMS- Universidad de Sevilla-CSIC), have a consolidated experience in the study of clay mineral barriers to store high-level radioactive waste (HLRW).

In many countries, the development of Deep Geological Repositories (DGR), for the storage of high-level radioactive waste (HLRW), is based on a multiple barriers system. Most of the safety of the repositories relies on the engineered barrier, which is mainly constituted by clay minerals. Clay minerals have low permeability and high sorption and swelling capacity, which makes them ideal materials for natural and engineered barriers for nuclear waste isolation.

The Universidad de Sevilla (US) and the Joint Research Centre (JRC) of the European Commission are now calling for applications for a PhD position through a Collaborative Doctoral Partnership (CDP) JRC-USE in the research line "Nuclear Waste Management and Decommissioning".

For more details about working at Instituto Ciencia de los Materiales de Sevilla (US-CSIC) and U Sevilla, please check www.icms.us-csic.es/ and www.us.es.

About JRC-Karlsruhe activity, please check https://ec.europa.eu/jrc/en/about/jrc-site/karlsruhe.

Job details

Within the CDP framework, we are looking for a PhD candidate to undertake a PhD focused on:

- The development, characterisation and optimisation of an immobilisation matrix for radioactive waste incorporation.
- The synthesis of design micas and purification of bentonite.
- The study of the immobilisation properties of the matrix for the leachates from spent nuclear fuels (SNF).

Profile

If you:

- Obtained a MSc in Science and Technology of New Materials, Nuclear Physics, or related areas[1]; Final-year students of the MSc are (likewise) encouraged to apply.
- Are interested in working in a multidisciplinary and international team, specialized in Geoscience and Nuclear Sciences & Technology.
- Work proactively and independently and have good communication skills.
- Are highly motivated, ambitious and result-oriented.
- Have a good knowledge of English, both spoken and written.
- Are willing to settle near JRC Karlsruhe in Germany, to work jointly with Instituto Ciencia de los Materiales de Sevilla (Universidad de Sevilla-CSIC).
- Fulfill (or will fulfill in the following months) the requirements to apply to the PhD programs of the Universidad de Sevilla according to the legislation of the University of Sevilla (Acuerdo 6.1/ CG 23-7-19); These details can be found in the International Doctoral School web: http://www.doctorado.us.es/acceso.
- Have the nationality of a Member State of the EU or a country associated to the Research Framework Programs (Horizon2020; Associated countries: Albania, Bosnia and

[1] The candidates should provide an official diploma supplement including a detailed list of subjects and obtained marks.

Herzegovina, Faroe Islands, Former Yugoslav Republic of Macedonia, Iceland, Israel, Moldova, Montenegro, Norway, Serbia, Switzerland and Turkey).

- Having publications as co-author in peer review journals will be favorably considered
- Having previous experience in physical and chemical characterization techniques will be also positively considered

Please consider to apply for:

Offer

- We offer a 3-year PhD position, in a collaboration JRC of the European Commission and Universidad de Sevilla. The student will be enrolled in one of the following PhD Programs of the Universidad de Sevilla: Science and Technology of New Materials or Physical Sciences and Technologies[2].
- Part of the PhD research (3 years) will be performed at the JRC in Karlsruhe, Germany. Where the PhD candidate will be funded through a 36-month employment contract as Grantholder Category 20 at the Joint Research Centre of the European Commission in Karlsruhe. The contract will include spending several weeks at the University of Sevilla per year. Previously to Karlsruhe contract, the PhD fellow will spend 3 months at the Universidad de Sevilla.

Selection procedure

You can only apply via email, up to and including 30/11/2020

All interested applicants are invited to submit an application package to the following directions: epavon@us.es and mvilla@us.es

The candidates will provide the following supporting documents to be evaluated:

- Photocopy of the degree that will provide access to the doctoral studies.

[2] To apply for the PhD program and subsequently present the PhD thesis and obtain the PhD degree by the Universidad de Sevilla, the student will need to follow the regulations of the Doctoral studies of the Universidad de Sevilla, please check here: http://www.doctorado.us.es/normativa

- Photocopy of the corresponding Transcript of Records. Including title and supervisor name of the MSc Thesis.
- CV (Europass format preferred) including previous work and research experience.
- Letter of motivation and interest
- At least 2 recommendation letters

All on-line data, including documents provided by the candidate, will be shared with JRC.

A preselection is conducted first based on the application package and then further followed by one/two interviews with few candidates for final selection. The interviews will be performed by JRC-Karlsruhe and US selection commissions.

NOTE: Please, be aware that the chosen candidate will have to present an excerpt of criminal/judicial record required prior to sign up the contract with the JRC -European Commission. In Spain it can be obtained in: https://sede.mjusticia.gob.es/cs/Satellite/Sede/es/tramites

Further information

Dr. María Villa: mvilla@us.es

Dr. Esperanza Pavón: epavon@us.es

If you have any question, contact us! We will be happy to inform you.

Selection commission:

Universidad de Sevilla (USE):

Dr. María D Alba

Dr. Santiago Hurtado Bermúdez

Dr. Esperanza Pavón

Dr. María Villa Alfageme

JRC:

Dr. Vincenzo Rondinella

Dr. Laura Aldave de las Heras

Dr. Stephane Bremier