CRETUS

USC UNIVERSIDADE DE SANTIAGO DE COMPOSTELA

RESEARCH CONTRACT TO DELEVOP A PHD

EXPLORING PFAS ENVIRONMENTAL FATE AND SUSTAINABLE REMEDIATION STRATEGIES FOR POLLUTED SOILS - PFASTOP

Position's characteristics

An opportunity to develop a PhD with financial support for a 4-years period is offered by the Group of Cartography of Soils and Landscape, Physical-chemistry, Degradation and Recovery of Soils and Waters (AMBIOSOL) of the University of Santiago de Compostela. The PhD project will be developed within the facilities of the research group in CRETUS and the Department of Soil Science and Agricultural Chemistry of the USC.

The contract is associated to the PFASTOP project described below and financed by the Spanish Research Agency (former FPI fellowships). The contract includes a monthly salary of around 1,260 € (year 1 and 2), 1,350 € (year 3) and 1,680 € (year 4). In addition, the Doctorate registration will be paid by the grant, as well as a fellowship to conduct a 3-month research stay abroad during the PhD period.

The contract starting date would be approximately **January-February 2026**.

Project description

The presence of per- and polyfluoroalkyl substances (PFAS) in soils and aquatic systems constitutes one of the great environmental challenges of the 21st century. The extensive global distribution of PFAS, along with their mobility, persistence, toxic character and potential bioaccumulation in the food chain poses a substantial environmental risk. Within this context, **the general objective** of the PFASTOP project is to contribute to the assessment of the extent of the PFAS contamination in Galician soils, understand their behaviour in the system soil-water-plant, determine the main transfer pathways and apply this knowledge to explore and optimize remediation processes for recovering soils contaminated by PFAS. To achieve this, four specific objectives are proposed: 1) Identification of PFAS-contaminated sites in Galicia; 2) Assessment of the factors controlling the transport and bioaccumulation of PFAS in the system soil-water-plant; 3) Evaluation of PFAS immobilization mechanism in the soil and its components under variable physico-chemical conditions; and 4) Exploration of different strategies for mitigating soil contamination by PFAS.

These objectives will be carried out through specific tasks detailed in the project proposal. The first workpackage, WP1, focus on the geolocation of PFAS-contaminated sites and quantification of PFAS in soils. This will enable the creation of an initial

inventory of PFAS-polluted sites in Galicia. Based on these results, WP2 will evaluate PFAS fate and behaviour in the soil, specifically PFAS bioavailability and leaching risks, and then analyse PFAS absorption and bioaccumulation in plant tissue. WP3 will focus on the identification of the main drivers controlling the interaction between PFAS and soil components, including mineral and organo-mineral surfaces. To support the results obtained, modelling tools will be developed to describe and predict the mobility of PFAS in soils. Finally, WP4 will explore the viability of different strategies for mitigating soil contamination by PFAS, including the use of carbon-based materials as soil amendments and phytoextraction.

The candidate will be incorporated into a research team with expertise in soil chemistry and environmental science, as well as physical-chemistry applied to natural soil and aquatic systems. He/she will be part of the Group of Cartography of Soils and Landscape, Physical-chemistry, Degradation and Recovery of Soils and Waters (AMBIOSOL) from the University of Santiago de Compostela. The group has access to high-quality resources and a solid network of collaborations at international level. So, the candidate will work at state-of-the-art lab facilities with the support of experienced researchers and technicians. Ambiosol staff is composed by 8 full/assoc. professors, 1 senior researcher, and ~10 PhD students, providing a stimulating and multidisciplinary work environment to conduct your research.

PFASTOP researchers belong to the **singular research centre CRETUS** (https://cretus.usc.es/en/home-cretus/) composed of 39 main researchers working in the field of Environmental Technologies that bring to the centre around 70 PhD students and 25 postdocs. They form a multidisciplinary team comprising chemists, biologists, physicists, engineers, economists and psychologists. CRETUS aims to develop and assess innovative environmental technologies with an interdisciplinary and holistic perspective, to ensure safe water, healthy soils, and sustainable cities and industries. Through CRETUS, the candidate has access to a **mentoring programme**, that looks for a continuous accompaniment of PhD students during their research, ensuring that their training adapts to their future professional perspectives. Among the courses offered are “Information Design Lab” for improving the visual presentation of data and information, “Development of scientific lidership”, “Writing and presentation skills to improve the impact of research”, “Tools to better plan their agendas”, etc.

Research area

Healthy soils - to reduce soil contamination and promote the rehabilitation of soil functions in urban and rural areas through the design and promotion of sustainable strategies and technological solutions.

Research team

Sarah Fiol (Scopus-Fiol), Carmela Monterroso (Scopus-Monterroso), Juan Antelo (Scopus-Antelo)

Brief work description

- Fieldwork for soil sampling collection.
- Lab-scale experiments to assess PFAS behaviour in the soil-water-plant system.
- Development of predictive model for PFAS mobility in soils.
- Optimization of the methodology for PFAS immobilization and phytoextraction in polluted soils.

Requirements

- Bachelor in Chemistry, Biology, Chemical Engineering, Environmental Sciences or similar areas.
- Master's degree in Soil Science, Environmental Science, Environmental Engineering or similar areas.
- Adequate training in soil chemistry.
- Good level in English and ability to travel abroad to attend project meetings or conferences.
- Commitment to perform a PhD Thesis.

Selection process

Applications must be sent to juan.antelo@usc.es (including in the subject: "PFASTOP position") before 20th October 2025.

Applications must contain the following documents:

- Motivation letter (not more than 1 page), indicating the contact details of the candidate and a brief description of the reasons why he/she should be selected.
- Academic record (Bachelor and Master)
- Curriculum Vitae

The selection process will include a personal interview to those candidates that based on the previous information fulfil the position requirements.