

**Title of the vacancy:**

PhD position in **“Soil Biodiversity and Ecosystem Functioning Assessment across Europe.”**

**Reference – Description of the organizational unit**

The University of Zurich and the Joint Research Centre (JRC) of the European Commission are inviting applications for PhD positions through the Collaborative Doctoral Partnership (CDP) scheme. The CDP scheme intends to enhance the science-policy link through strategic collaborations with higher education institutions characterized by research excellence and international reputation, in order to:

- Train a new generation of doctoral graduates in science and technology with a focus on the science-policy interface, able to understand the research needs at different stages of the policy cycle, capable of providing scientific support to policy and of using transferable skills in science communication and knowledge management.
- Co-develop, co-host and co-supervise doctoral studies between higher education institutions and the JRC.
- Strengthen collaboration between the JRC and higher education institutions by promoting mutual enhancement of related skills and competences, combining existing knowledge and capacities, and enhancing networking in key scientific areas.

**Responsibilities**

Within the CDP framework we are looking for a PhD candidate studying links between soil biodiversity, microbiome complexity and functional diversity and land use across a North-South and East-West Gradient in Europe. It will build upon recent research highlights published by JRC and the University of Zurich. The proposed work will make use of a large soil assessment survey called LUCAS (Land Use/Land Cover Area Frame Survey) that was launched by the European Commission in 2009 and which is coordinated by JRC. The current project builds upon soil samples collected in 2018 and it comprises a total of over 20,000 soil samples collected across Europe. Among those, 1000 samples, from agricultural land, grassland & forest, will be for the first time assessed in terms of soil biodiversity by means of meta-barcoding and metagenomics approaches.

The PhD student will assess soil biodiversity characteristics and link these data with available soil characteristics (chemical and physical soil characteristics, pesticides and antibiotics residues and DNA sequences). The PhD will perform data analysis (analysis of microbiome and metagenome data and linking these to soil physical, chemical and biological characteristics) and if relevant perform additional lab based student. The PhD student will:

- 1) Identify the factors that regulate soil biodiversity and microbial networks across the land use gradient in Europe.
- 2) Identify keystone taxa in the soil microbiome and select indicator taxa for specific ecosystem functions. Test whether keystone taxa are influenced by pesticides/antibiotics in the soil.
- 3) Investigate whether soil biological biodiversity, microbiome complexity and soil functional gene diversity and composition is influenced by pesticide/antibiotic concentrations in the soil.

## Profile

- You have (or are near completion of) a Master in Biology, Ecology, Microbiology, Soil Science, Agricultural Sciences, Environmental Sciences, Geography (or a related field).
- You have a strong interest in soil microbial diversity and soil ecosystem functioning.
- Experience with the analysis of microbial communities and complex data-sets (including bioinformatics), metagenomics and/ or soil ecology.
- You have excellent knowledge of R and data-analysis skills.
- You work proactively and independently and have good communication skills.
- You have a very good knowledge of English, both spoken and written.
- Relevant publications in peer review journals should be highlighted.
- You are highly motivated, ambitious and result-oriented.

## Offer

- We offer a four-year PhD position in collaboration with the Joint Research Centre (JRC) of the European Commission.
- The PhD research will be realized at the Joint Research Centre (JRC) in Ispra, Italy, for a period of up to 24 months.
- We offer a competitive fellowship. While at the JRC in Ispra, you will get a contract as a [Grant Holder 20](#).

## Interested

The selection process is based on the CV, tests and interviews. It is composed of two phases, that is, a first selection is made by the University of Zurich resulting in a short list of candidates and then a second selection is made by JRC. Candidates should at the start of the employment contract with JRC:

- Have the nationality of a Member State of the EU or a country associated to the Research Framework Programs (Horizon2020).
- Candidates from other countries may also apply providing they have a residence and work permit in Italy. They will have to go through the security clearance before they can be granted the GH contract.
- After the selection process, enroll in the [PhD programme Science and Policy](#) at University of Zurich hosted by the [Zurich-Basel Plant Science Center](#).

Candidates can apply [HERE](#) till February 7, 2020.