Junior Professor Chair (JPC) Profile – 2024 Recruitment Campaign

Host Site :

Université du Littoral Côte d'Opale – (ULCO) - Calais

Project Title :

OmicS Approaches for ENvironmental Applications

Optional Project Acronym :

OSEN

Provide 5 keywords characterizing the scientific project :

Functional diversity of the plant-associated microbiome
Ecosystem Services
Bioinformatics
Biocontrol
Phytomanagement

Target Duration :

6 years

Votre réponse doit être comprise entre 3 et 6

Scientific theme ERC :

	Sciences du système Terre et de l'univers
X	**Environment, Agronomy, Ecology**
	Physique
	Énergie
	Chimie et procédés
	Mathématiques
	Sciences et technologies de l'information et de la communication
	Biologie et santé
	Sciences humaines et sociales
	Droit, économie, gestion

Institutional Strategy:

Sustainable development and environmental preservation have been priority areas in ULCO's scientific policy for the past 30 years. Its role in coordinating and supporting various BQR, CPER programs, and European FEDER funding initiatives has been a key driver in developing collaborative projects with numerous regional, national, and international partners in the fields of plant health, environmental science, soil quality, and air quality.

For the 2021–2027 period, this includes the CPER ECRIN, led by ULCO, and the CPER BiHautsEcoDeFrance, in which it is actively involved. These initiatives aim to improve understanding of the impact of anthropogenic activities on the environment quality, and to propose emerging and ecofriendly methods for soil conservation or remediation. These approaches notably rely on plant and microbial resources, as well as bio-based compounds, in line with the principles of a circular economy.

OSEN project focuses on the preservation and/or restoration of degraded soils through the evaluation of ecosystem services provided as a result of restoring soil health and improving the structure and functional diversity of rhizospheric and phyllospheric microbiomes. This is

particularly relevant in the context of climate change and is based on omics approaches (metagenomics, metatranscriptomics, and metabolomics). As such, the project directly addresses the issues targeted by both CPER programs and aligns with ULCO's strategic objectives.

It aims to combine excellent fundamental research with applied outcomes, addressing current societal challenges with strong expected socioeconomic impacts at regional, national, and international levels. Moreover, it contributes to the priorities of the new Priority Research Program and Equipment (PEPR) on agroecology and digital technologies, as well as the 2030 National Biodiversity Strategy.

Host Research Unit :

UCEIV - Environmental Chemistry and Life Interactions Unit
IPCR - Team Plant-Fungi Interactions and Remediation

Hosting Laboratory Strategy :

IPCR - UCEIV team research focused plant-fungi (both mycorrhizal and pathogenic) interactions to develop innovative methods to avoid soil degradation and restored polluted-areas.

OSEN project will bring new expertise to :

1. investigate the functional biodiversity of rhizospheric and phyllospheric microbiomes associated with crops of interest, with a view to plant health, soil preservation and/or remediation;
2. evaluate the ecosystem services provided by phytomanaged soils.

These advances will contribute to valorizing plant resources and microbial biodiversity in the context of assisted phytoremediation of polluted soils or reducing the use of chemical inputs in agriculture. For example, one of the project's key goals is the selection of beneficial microorganisms and their use as inoculum to promote more sustainable management practices.

In addition, the JPC will foster the development of new national and international collaborations, increasing the team's success potential in competitive programs such as Horizon Europe (HE), ANR, and ERC.

Scientific Project Abstract :

With the growing urgency of climate and environmental challenges, preserving non-renewable resources such as soil and rethinking production and consumption patterns have become imperative. Agroecological initiatives are emerging with the aim of building a more virtuous production model that respects both human health and the environment. The research carried out by the IPCR-UCEIV team is in line with this vision and focuses on two main themes :
(i) Development of biosolutions against fungal disease of wheat.
(ii) Phytomanagement of polluted soils

The JPC will be responsible for strengthening these research areas by developing omics approaches to investigate the importance of the recruitment of phyllospheric and rhizospheric microbiota that promote plant and soil health, as well as their role in the ecosystem services provided by soils, particularly those under phytomanagement. Expertise in microbial ecology,

plant-microbe (mycorrhizal and pathogenic) interactions and bioinformatics (including metabarcoding, metagenomics, metatranscriptomics, genomic variant analysis, and metabolomics) will be particularly valued.

Teaching Project Summary :

The recruited candidate will be involved in teaching within the preparatory and engineering cycles in agri-food sciences at EILCO, as well as in the Life Sciences Bachelor's program at ULCO (Calais), particularly in the Environment track that will be offered in the third year (L3SV) starting in the 2026 academic year.
They will be responsible for delivering lectures, tutorials, and practical sessions in biological methodologies, emerging technologies in molecular biology, plant biology and physiology, microbial ecology, and environmental bioinformatics.

The candidate is also expected to contribute to the development of student support systems, such as tutoring (OUI SI), academic success programs at the undergraduate level, and to actively engage in the implementation of innovative teaching methods.

Allocation of Financial Needs :

Nature of the planned expenditures	Estimated amounts of planned expenditures in euros
Use of the ANR funding package	200 000
Co-funding of the package	170 920
Co-funding of the CPJ's salary	304 185
Total	675 105

Use of the ANR funding package: *

The total must equal €200,000. Only whole numbers may be entered in these fields.

Nature of the planned expenditures	amounts of planned expenditures in euros
Doctorant (0,5)	57 960
Post-doctorant	63 382,50
Engineer	
Equipment	
Operating costs (missions, conferences, etc.)	78 657,50
Total	200 000

Co-funding of the package: *

Nature of the planned expenditures	Amounts of planned expenditures in euros
Co-funding of the PhD	115 920
Research Quality Bonus for the institution	50 000
Publication support	5 000
Total	170 920

The total must be equal to the 'Co-funding of the package' line in the financial needs distribution table

International Attractiveness Strategy :

This JPC is part of a broader effort to strengthen research capacity in the field of plant-fungi (both mycorrhizal and pathogenic) interactions and environmental remediation, in support of the UCEIV - IPCR, whose international scientific visibility has been steadily increasing in the recent years.

The JPC will contribute to expanding the team's network of international collaborators and gaining access to complementary technical and scientific expertise. This recruitment is expected to lead to the submission of large-scale European research projects and the potential creation of a Master's program (M2) or a new specialization track within the EILCO engineering school, focusing on plant and microbial biotechnologies, phytotechnologies, and their role in agroecological transition, climate change mitigation, and the bioeconomy.

Scientific Outreach and Dissemination :

Scientific dissemination will be carried out through:

- Publications in high-impact scientific journals
- Presentations at leading international conferences
- Development of national and international collaborations
- Outreach to the general public, notably through partnerships with science and technology outreach institutions (e.g. PLUS, Halle aux Sucres), scientific networks (RMT Bestim, etc.), and long-standing partner associations (SFP, AFES, Territoire Europe, Saprophytes, Rhizobiòme, etc.) that have collaborated with UCEIV for many years.

Is the project part of an open science approach?

Please select only one of the following options:

x	Yes
	No

Open Science Commitment :

ULCO and UCEIV have actively embraced an open science approach in recent years, and this commitment will be further strengthened within the OSEN project through:

- Systematic deposit of communications and publications on the national open archive HAL
- Funding, via internal resources (ULCO/UCEIV), for publication in high-impact full open access journals
- Open access to datasets, which will be published and made publicly available through the creation of dedicated websites for the various research projects undertaken

Science and Society: Does the project include plans for communication with the general public?

x	Yes
	No

Collaboration with Outreach Institutions :

For several years, UCEIV has maintained collaborations with science, technology, and industry outreach institutions in its region (e.g., Palais de l'Univers et des Sciences, Learning Center Ville Durable) and with local associations. Furthermore, UCEIV regularly participates in awareness and science outreach activities targeted at schools in the Côte d'Opale region (kindergartens, primary schools, middle schools, high schools), as well as the general public. These activities include participating in events such as Fête de la Science and Heritage Days (in Calais, Dunkerque, Lille), where UCEIV contributes by delivering conferences, organizing workshops, and hosting interactive exhibitions.

Specify the monitoring indicators for the project's implementation and the methodology for tracking them:

The following indicators will be used throughout the project. It is important to note that these may evolve until the date of the agreement's signature:

1. Publications in high-level international journals
2. Several PhD theses initiated
3. Submission of projects to national and international calls for proposals
4. Establishment or integration of a research network on the topic (with associated communications)
5. Development of courses at the Master's, Engineer, Bachelor's, and Doctoral levels on the topic (soil phytoremediation, biocontrol of fungal diseases, omics approaches for the environment)

Comments :

The application must include a research project describing the integration into the IPCR laboratory team. Depending on the candidate's skills and interests, she/he will be free to integrate into one or both of the two research themes developed in the laboratory.

Following an evaluation of the scientific achievements and professional competencies of the chair holder by a tenure review committee, the individual may be eligible for a tenured professorship.

Application on : https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_CPJ.htm

Application (via Galaxie Odyssée platform) : from 10 june to 20 september 2025

Contact and further information:

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