

BIENVENÜE

INTERESTS FOR SUPERVISION

VERSION 1 – OCTOBER 2025

This document lists Brittany-based researchers that are interested in hosting and supervising a Bienvenue+ laureates. It aims to help potential applicants to find a supervisor for the upcoming Bienvenue+ call. This list is not exhaustive.

These potential supervisors have indicated their research interests and expertise, as well as their contact details. Interested applicants are encouraged to directly contact them via email or via their websites.

Researchers that are interested in adding to this list an expression of interest can contact msca-bienvenue@bretagne.bzh

Number #	Title
1	Organic chemistry of pi-conjugated systems
2	Metal halide perovskites and perovskitoids: from ab-initio to empirical modeling for the development of frugal & environmentally friendly devices
3	Physics of metal halide perovskites: modelling and characterization of materials, nanostructures and devices
4	Biophysics of bacteria in soil at the microscale
5	Understanding Life Under High Pressure: A Molecular Exploration in T. barophilus
6	Continental aquatic ecology on wetlands
7	Assessing Biodiversity Linked to Small Water Infrastructures across Diverse Urban and Rural Settings
8	Genomics, physiology, ecology and/or applied aspects of algal pathogens interactions
9	Impact of thyroid hormonal system disruption on the health of rainbow trout intergenerationally exposed to PFAS
10	Understanding of interfacial behavior of plant protein
11	Advanced DSP and AI techniques for nonlinear compensation in coherent optical fiber networks
12	Plastic pollution in agriculture
13	Insect-Based Low-Tech Solutions for Plastic Waste and Sustainable Poultry Farming in Brittany
14	Ecogeochemistry
15	Functioning and Stability of complex ecological communities & ecosystems
16	Additive Manufacturing of Bio-Based Construction Materials

Interest #1	Organic chemistry of pi-conjugated systems		
Keywords	<i>Organic Electronics; pi-conjugated systems; Organic chemistry, Photophysics, electrochemistry, OLEDs</i>		
Laboratory	ISCR	Host Institution	CNRS
Description	Our group is involved in the design, the synthesis and the study of pi-conjugated systems for organic electronics. Particularly, we design organic host materials for OLEDs particularly high triplet energy. Our group is also strongly involved in the synthesis of nanohoops, new generation of macrocycles with a cylinder shape, possessing awesome electronic properties. We are organic chemists with also an expertise in photophysics, electrochemistry and organic electronics. We are working with many research groups worldwide such as those of Prof Cornil (Belgium), Jiang (China) and Adachi (Japan)		
Name	PORIEL CYRIL		
Contact (mail)	cyril.poriel@univ-rennes.fr		
Contact (website)	https://iscr.univ-rennes.fr/fr/cyril-poriel		

Interest #2	Metal halide perovskites and perovskitoids: from ab-initio to empirical modeling for the development of frugal & environmentally-friendly devices		
Keywords	<i>metal halide perovskites; hybrid organic/inorganic; quantum dielectric confinement; exciton physics; optical activity; chirality; photovoltaics; light emission; RMN; NQR;</i>		
Laboratory	ISCR	Host Institution	CNRS
Description	Candidates with excellent background in solid state physics would benefit from knowledge and collaborations in the field of metal halide perovskites and related perovskitoids to build an original theoretical project. This may range from state-of-the-art many-body ab-initio approaches down to empirical models, more suitable to tackle devices related open questions. Advice for both methodological developments and numerical simulations dedicated to specific experimental technics (for instance NMR/NQR, ultrafast spectroscopies) or, phase transitions,...) or physical observables, on perovskite semiconductor physics, organic photoactive or spectator cations, from bulk to nanostructures are possible.		
Name	KATAN Claudine		
Contact (mail)	claudine.katan@cnrs.fr		
Contact (website)	https://cv.hal.science/katan		

Interest #3	Physics of metal halide perovskites: modelling and characterization of materials, nanostructures and devices		
Keywords	<i>solid-state physics; tight-binding; k.p hamiltonian; exciton; many-body; electron-phonon; polaron; optoelectronic devices; solar cells; LED; quantum optics; semiconductors; quantum dots; quantum wells; thin films; Neutron scattering; Raman scattering; synchrotron ; XRD</i>		
Laboratory	FOTON CNRS	Host Institution	INSA Rennes
Description	FOTON team has a long-lasting experience in bridging abinitio or empirical simulations with structural, optical and vibrational characterization of perovskite materials, and low-dimensional (2D, 0D) perovskite nanostructures. Candidates with excellent background in solid state physics would benefit from knowledge, national and international collaborations of the perovskite group in Rennes. Combined experience in empirical modelling, advanced characterization of semiconductors and nanostructures are welcome in the perspective of optoelectronic device, solar cell and quantum optical emitter design		
Name	Jacky Even		
Contact (mail)	jacky.even@insa-rennes.fr		
Contact (website)	https://www.institut-foton.eu/physique-des-materiaux-et-dispositifs-perovskites/		

Interest #4	Biophysics of bacteria in soil at the microscale		
Keywords	<i>environmental transport phenomena - bacterial behavior - interfacial dynamics - microfluidics</i>		
Laboratory	IPR	Host Institution	Université de Rennes
Description	My main research interests lie at the interface between soft matter physics, fluid mechanics, biophysics, and environmental microbiology. Current work of my lab combines experiments – using tools such as microfluidics and microscopy – and theoretical models to understand microbial dynamics in the environment and their macroscopic impacts. One question we are particularly keen to explore within the interdisciplinary community of the campus of Rennes Beaulieu is how microbes such as bacteria interact with air-water interfaces in the soil and modify water dynamics there.		
Name	François Peaudecerf		
Contact (mail)	francois.peaudecerf@univ-rennes.fr		
Contact (website)	https://ipr.univ-rennes.fr/interlocuteurs/francois-peaudecerf		

Interest #5	Understanding Life Under High Pressure: A Molecular Exploration in <i>T. barophilus</i>		
Keywords	<i>Deep sea hydrothermal vent ; piezophiles ; archaea ; hyperthermophiles ; adaptation ; structural biology ; High hydrostatic pressure ; microbial physiology ; microbial genetics ; biochemistry</i>		
Laboratory	BEEP	Host Institution	UBO
Description	Our group is working on the cellular and molecular characterization of adaptation mechanisms to high hydrostatic pressure (HHP) in <i>Thermococcus barophilus</i>, a hyperthermophilic and piezophilic archaeon. The main objective is to investigate the role of specific transcriptional regulators in response to HHP. Our work involves detailed biochemical and biophysical analyses of protein-DNA interactions, including under HHP conditions, in order to better understand how <i>T. barophilus</i> can tolerate — and even thrive under — such extreme pressures. This remarkable adaptability enables its survival and proliferation near deep-sea hydrothermal vents. Beyond its fundamental scientific interest, this research aims to identify metabolites and enzymes with biotechnological potential, and to launch comparative genomic and metagenomic analyses. These will help assess the degree of conservation of the genes involved in pressure adaptation and extract key traits of life in extreme environments, such as those found in deep-sea hydrothermal systems.		
Name	Mohamed Jebbar		
Contact (mail)	mohamed.jebbar@univ-brest.fr		
Contact (website)	https://www.umar-beep.fr/en		

Interest #6	Continental aquatic ecology on wetlands		
Keywords	<i>biodiversity, malaise trap, eDNA, carbon flux, invertebrates</i>		
Laboratory	UMR6553 ECOBIO	Host Institution	Université de Rennes
Description	My research focuses on landscape ecology in the context of global climate change and biodiversity conservation. My work aims to understand the functioning of animal communities and populations in heterogeneous environments subject to strong anthropogenic constraints, such as urban, agricultural and freshwater environments. Currently working on a national project on wetlands, we are examining flux of emerging aquatic insects in adjacent terrestrial environments and ecosystem services associated.		
Name	Benjamin Bergerot		
Contact (mail)	benjamin.bergerot@univ-rennes.fr		
Contact (website)	https://ecobio.univ-rennes.fr		

Interest #7	Assessing Biodiversity Linked to Small Water Infrastructures across Diverse Urban and Rural Settings		
Keywords	<i>fountains, washhouses, wells, trough, biodiversity, microbiology, eDNA, groundwater, surface water</i>		
Laboratory	BOREA	Host Institution	MNHN
Description	Microbial Ecologist at the French National Museum of Natural History, within the BOREA unit (Biology of Aquatic Organisms and Ecosystems). I am based at the Concarneau Marine Station for my research. For over twenty years, my research has focused on the diversity, structure, and functions of microbial communities, particularly in microbial assemblages known as biofilms or microbial mats. I study how these communities interact with their environment (in marine or freshwater settings), respond to disturbances, and contribute to the functioning of aquatic ecosystems. My scientific career began with a PhD in 2006 dedicated to interactions within marine biofilms, their involvement in major biogeochemical cycles, and their sensitivity to pollutants. Between 2012 and 2018, I developed an integrated approach combining biochemical analyses (pigments, lipids, exopolymers), ecophysiology, biogeochemistry, trophic ecology, ecotoxicology, laboratory experimentation, and in situ observation, in order to build a unifying perspective on biofilms. This work led to my Habilitation à Diriger des Recherches (HDR, or Accreditation to Supervise Research). Today, my research is oriented toward contemporary environmental challenges: pollution, climate change, and the resilience of coastal habitats. To address these issues, I use tools such as metabolomics, chemical fingerprinting, metabarcoding, and integrated microbiome–metabolome approaches. Through my publications and collaborations, I strive to better understand and highlight the fundamental role of microbial communities in the functioning of aquatic ecosystems. I am also interested in science communication, invisible biodiversity (microorganisms, micro-invertebrates such as tardigrades), and in showcasing the role of microorganisms in ecosystem dynamics.		
Name	Cédric HUBAS		
Contact (mail)	cedric.hubas@mnhn.fr		
Contact (website)	https://borea.mnhn.fr/en/users/c%C3%A9dric-hubas		

Interest #8	Genomics, physiology, ecology and/or applied aspects of algal pathogens interactions		
Keywords	<i>Algae; host-pathogen interactions ; functional genomics ; ecology ; evolution ; aquaculture ; conservation</i>		
Laboratory	UMR 7245	Host Institution	MNHN
Description	Originally trained as a molecular plant pathologist, I am a Professor at the Muséum National d'Histoire Naturelle (Paris, France). My research focuses on the ecology, physiology and genomics of diseases in algae, disease management in commercial algal cultivation, as well as their implications for policy-making towards biosecurity and conservation. Typically, I address research questions by establishing model interactions involving eukaryotic pathogens and their algal host(s). We then deploy biochemical, histological, molecular, genomic or biophysical investigation tools to characterise these models and link them with environmental data and/or in silico analyses. I would be especially open to discuss the possibility of a MSCA project based in the marine station of Concarneau, that would make use of the emerging seaweed aquaculture facilities there.		
Name	Claire Gachon		
Contact (mail)	claire.gachon@mnhn.fr		
Contact (website)	https://mcam.mnhn.fr/fr/annuaire/claire-gachon-6345		

Interest #9	Impact of thyroid hormonal system disruption on the health of rainbow trout intergenerationally exposed to PFAS		
Keywords	<i>PFAS; endocrine disruptors; immunity; trout; reproduction; in vivo exposure</i>		
Laboratory	PPN unit VIMEP	Host Institution	Anses
Description	Scientists and public authorities have become increasingly interested in endocrine-disrupting compounds (EDCs) because of their increasing use and growing evidence of their harmful effects on humans and the environment. Recently, the disruption of the thyroid hormone system (THS) by EDCs has gained more attention due to its impact on many key physiological systems including the immune system (IS). Among EDCs, per and polyfluoroalkyl substances (PFAS) are ubiquitous and persistent in the environment as well as in organisms causing many biological disturbances. We are looking to investigate further the impact of THS disruption on global health in rainbow trout exposed during two generations to PFAS.		
Name	Morgane Danion		
Contact (mail)	morgane.danion@anses.fr		
Contact (website)	-		

Interest #10	Understanding of interfacial behavior of plant protein		
Keywords	<i>plant protein, foam, interfacial behavior</i>		
Laboratory	UMR Science and Technology of milk and egg	Host Institution	Institut Agro Rennes-Angers
Description	To meet the increasing demand for protein and environment sustainability, there is a necessity to support protein transition by expanding the range of plant-based protein products. Foams are particularly challenging applications as they required protein with high solubility, fast diffusion towards the interface, flexibility and interactions ability. Moreover, plant protein ingredients often contain traces of fat and/or polysaccharides that impact their interfacial behavior and thus their foaming properties. A first project performed in the lab identified at least 3 interesting plant protein ingredients as egg white replacer in foams. We would like to further understand the interfacial behavior of these plant proteins in relation with their molecular state and especially their aggregation level, as a function of physicochemical and processing conditions and to rely it to macroscopic characterization of foams such as foaming capacity, foam stability and foam texture. The digestibility of foams obtained could also be considered. The mix research unit Science and Technology of Milk and Eggs has a high experience in the study of milk and egg protein functionalities. For nearly 10 years now, the researchers also included plant proteins in their subject areas and wished to transfer their expertise acquired on animal proteins to plant proteins. Especially, the group process-structure-functionality (PSF) explores the main molecular and supramolecular mechanisms behind the macroscopic behavior of food proteins such as foams.		
Name	Valérie Lechevalier		
Contact (mail)	valerie.lechevalier@institut-agro.fr		
Contact (website)	https://eng-stlo.rennes.hub.inrae.fr/		

Interest #11	Advanced DSP and AI techniques for nonlinear compensation in coherent optical fiber networks		
Keywords	<i>Optical fiber networks ; Coherent communications ; Optical performance monitoring ; Nonlinearity compensation ; Signal Processing ; Machine learning.</i>		
Laboratory	Lab-Sticc	Host Institution	Bretagne INP
Description	The surge in internet data traffic has driven demand for high-capacity communication networks. Long-haul coherent optical transmission using WDM in the C-band plays a key role, covering hundreds to thousands of kilometers. These systems use optical fibers and amplifiers but are affected by nonlinear impairments like stimulated scattering and Kerr effects. As data rates and bandwidth increase, signals become more sensitive to nonlinear distortions, especially in multi-band systems. Efficient optical channel compensation algorithms are needed to balance complexity and performance. High symbol rates and advanced modulation formats also require precise management of optical and electrical degradations. While deterministic nonlinearities can be addressed via digital signal processing (DSP), stochastic effects from Kerr nonlinearity, dispersion, polarization, and noise are harder to mitigate. Artificial Intelligence (AI), particularly Machine Learning (ML), offers potential by learning and predicting		

	complex nonlinear behaviors. Still, issues like laser phase noise and polarization mode dispersion remain challenging. Hybrid DSP/AI approaches are being explored for efficient, robust compensation. We are currently expanding our work to focus on low-complexity ML models to reduce processing demands. Adaptive, self-calibrating models will be investigated along with improved optimization techniques tailored to optical systems. Physics-based ML models will integrate optical knowledge to enhance detection at low complexity. AI-enhanced DSP will improve tracking and robustness, especially for polarization demultiplexing and phase noise. We carry out experiments at Bretagne INP in collaboration with LabOptic, a joint lab with Orange.
Name	Stéphane Azou
Contact (mail)	azou@enib.fr
Contact (website)	https://web.enib.fr/~azou/

Interest #12	Plastic pollution in agriculture		
Keywords	<i>biodegradable plastic ; mulch films ; food packaging ; waste ; methanisation ; compost ; aerobic degradation ; anaerobic degradation ;</i>		
Laboratory	OPAALE	Host Institution	INRAE
Description	Methanisation and composting are the two valorization solutions, very promising for transforming organic biomass into biogas and/or fertilizer for agricultural soils in anaerobic or aerobic conditions. However, the presence of collection bags or other plastic objects (single-use packaging, mulching film, etc.) in biowaste represents a source of major difficulties in technological terms (blockage of grinders, filters, etc.) and for the health of ecosystems (return to the ground of digestates) and humans. Our research aims at improving and better understanding the biodegradation of these plastics in biowaste management processes while preventing their health hazards. To achieve this, we must develop i) new approaches to aerobic and anaerobic treatments and pretreatments of biodegradable plastics, but also ii) analytical methods suitable for the real-time characterization and quantification of degradation residues whose toxicity and ecotoxicity must be evaluated.		
Name	Corinne Rondeau-Mouro		
Contact (mail)	corinne.rondeau-mouro@inrae.fr		
Contact (website)			

Interest #13	Insect-Based Low-Tech Solutions for Plastic Waste and Sustainable Poultry Farming in Brittany		
Keywords	<i>Plastic biodegradation ; Insect-based solutions ; Low-tech innovation ; Tenebrionid beetles ; Alphitobius diaperinus ; Polystyrene degradation ; Microbiome and biodegradation ; Ecological transition ; Waste management ; Sustainable poultry farming ; Green agriculture</i>		
Laboratory	UMR CNRS Ecobio	Host Institution	CNRS
Description	I have over 20 years of research experience on the lesser mealworm, <i>Alphitobius diaperinus</i>, encompassing its thermal ecology (e.g., Colinet, 2011 CBP-A; Colinet et al., 2011 J. Therm. Biol.; Lalouette et al., 2007 FEBS J), insecticide resistance, and more recently, plastic biodegradation. My work in Brittany has characterized populations resistant to β-cyfluthrin, highlighting significant agricultural and economic impacts (Renault & Colinet, 2021 Insects; Colinet et al., 2023 Trends Entomol; Gouesbet et al., 2025 Insect Science). Building on this expertise, I have		

	explored the potential of <i>A. diaperinus</i> to degrade synthetic plastics, including polystyrene, demonstrating its capacity to fragment and digest polymers in controlled experiments (Richard et al., 2025, Environ Technol Innov). Parallel studies on micro- and nanoplastics in <i>Drosophila</i> , have deepened my understanding of plastic pollution hazards and organismal interactions (Renault et al., 2024 STOTEN; Richard et al., 2024 J. Hazardous Mater.; Richard et al., 2025 Ecotox. Environ. Safety). This unique combination of expertise on the model organism biology, pest management, and plastic biodegradation, positions me to explore innovative, low-tech, and sustainable solutions at the interface of applied ecology, agronomy, and environmental engineering. I am looking to work further on: (1) elucidating the underlying mechanisms underlying plastic degradation by <i>A. diaperinus</i> (microbiota, digestive enzymes, secondary biodegradation), and (2) exploring/designing novel, pest-resistant insulating materials in collaboration with technical and industrial partners. I am particularly keen on projects that bridge fundamental research and practical applications, developing eco-innovative strategies for both plastic waste remediation and sustainable poultry production.
Name	Hervé Colinet
Contact (mail)	herve.colinet@univ-rennes.fr
Contact (website)	https://ecobio.univ-rennes.fr/interlocuteurs/herve-colinet

Interest #14	Ecogeochemistry		
Keywords	<i>Benthic ecosystem functioning; Marine ecology; Biogeochemistry; Meiofauna; Foraminifera; Bioturbation; Symbiosis; Metabolism</i>		
Laboratory	UMR BEEP	Host Institution	IFREMER
Description	I am an ecogeochemist interested in the contribution of microfauna in the benthic ecosystem functioning. I aim at characterizing biogeochemical gradients in benthic microhabitats using microsensors and planar optodes. I study microfaunal contribution via their ecology, metabolism, bioturbation and symbiosis.		
Name	Dewi Langlet		
Contact (mail)	dewi.langlet@ifremer.fr		
Contact (website)	https://annuaire.ifremer.fr/cv/30956/en/		

Interest #15	Functioning and Stability of complex ecological communities & ecosystems		
Keywords	<i>biodiversity-ecosystem functioning; temporal stability; food-webs; meta-ecosystems; species interactions; community ecology</i>		
Laboratory	DECOD	Host Institution	INRAE
Description	My research aims to understand how anthropogenic pressures alter ecological communities and ultimately disrupt ecosystem functioning. This is a complex challenge because community responses emerge from both the diversity of species-specific reactions to environmental changes and the intricate networks of interactions among species. My work integrates these interaction networks into theoretical and applied ecology to address a central question: How do species interactions mediate the effects of environmental pressures on ecological systems—particularly in community assembly, ecosystem functioning, and stability? To answer these questions, I use a combination of data analysis, theoretical simulations, and in situ experiments.		

Name	Alain Danet
Contact (mail)	alain.danet@inrae.fr
Contact (website)	https://alaindanet.github.io/

Interest #16	Additive Manufacturing of Bio-Based Construction Materials		
Keywords	<i>Additive manufacturing ; Embedded 3D printing ; Construction materials ; Bio-based materials</i>		
Laboratory	LGCGM	Host Institution	Université de Rennes
Description	Our group is exploring new strategies to shape natural and bio-derived resources (such as earth, hemp fibers, and foams) using 3D printing. The goal is to create lightweight, high-performance, and environmentally friendly building components with tailored mechanical and thermal properties. We want to contribute to designing novel printable formulations, optimizing architectures for strength, durability, and insulation, and assessing the environmental impacts of these emerging materials.		
Name	Alexandre Pierre		
Contact (mail)	alexandre.pierre@univ-rennes.fr		
Contact (website)	https://www.linkedin.com/in/alexandre-pierre-393b10113/?originalSubdomain=fr		



This programme is funded by the European Union's Horizon Europe research and innovation framework programme under the Marie Skłodowska-Curie Grant Agreement No 10121668.