










MSCA Postdoctoral Fellowships at Sorbonne University

Call for expression of interest 2024

MARINE SCIENCES	
Code	Topics and supervisors / research units
MAR1	<p>Carbon fixation in marine Synechococcus Christophe Six - Adaptation et diversité en milieu marin (AD2M) – Roscoff, Brittany</p> 
	<p><i>Synechococcus picocyanobacteria have colonized a variety of marine habitats ranging from the equator to the polar circles. Despite their undeniable ecological significance, their carbon fixation mechanisms remain poorly understood. The focus of this postdoctoral fellowship will involve investigating the impact of temperature on the photosynthetic carbon fixation machinery, employing laboratory strains isolated from various thermal niches and publicly available bioinformatic resources.</i></p>
MAR2	<p>Evolutionary histories and development of symbioses in shrimps from deep-sea hydrothermal vent ecosystems François Lallier - Adaptation et diversité en milieu marin (AD2M) – Roscoff, Brittany</p> 
	<p><i>Recent studies on symbioses have shed light on the mechanisms governing host-symbiont interactions and how new symbioses emerge and are maintained throughout evolution. But this remains limited to a few numbers of species models. Alvinocarid shrimps, endemic to deep-sea chemosynthetic ecosystems, host two ectosymbioses of distinct nature, including one which appeared in two distinct lineages of the family offering an interesting comparative framework. How these symbioses have emerged & evolved?</i></p>
MAR3	<p>Alteration of the ecological fate of diatoms by marine viruses Anne-Claire Baudoux - Adaptation et diversité en milieu marin (AD2M) – Roscoff, Brittany</p> 
	<p><i>Despite increasing awareness of the ubiquity of diatom RNA viruses in the ocean, there is limited understanding of their ecological / biogeochemical significance (the mortality that they cause, their regulation and impact on elemental fluxes). We propose a thorough study of viral infection of dominant diatom species to address the hypothesis that infected diatoms are metabolically distinct from uninfected cells and have distinct ecological and biogeochemical fates.</i></p>
MAR4	<p>Biogeochemical Impacts of the linkage between marine microbes and dissolved organic matter Eva Ortega-Retuerta - Laboratoire d'Océanographie Microbienne (LOMIC) – Banyuls, Occitanie</p> 
	<p><i>I am looking for candidates to join our group on the study of the link between organic matter and prokaryotes across ocean ecosystems. Some of the possible questions to tackle are:</i></p> <ul style="list-style-type: none"> - <i>What are the metabolic underpinnings of the microbial carbon pump in the ocean?</i> - <i>What is the linkage between DOM composition and microbial taxonomical and functional diversity in the Arctic Ocean?</i> - <i>What are the temporal patterns of microbial vertical connectivity, and which is the role of particles?</i>






MSCA Postdoctoral Fellowships at Sorbonne University

Call for expression of interest 2024

MAR5	Exploring the interplay of biofouling, marine microorganisms and materials for the development of sustainable marine wind farms: a multidisciplinary research perspective Raphaël Lami - Laboratoire de Biodiversité et Biotechnologies Microbiennes (LBBM) – Banyuls, Occitanie	
	<i>France and Europe are considering the development of marine wind farms. Our projects focus on characterizing the diversity and role played by biofouling and marine microorganisms in particular in catalyzing or inhibiting corrosion and biodegradation in marine renewable energy installations. Our aim is to combine biological, chemical and ecotoxicological approaches to address multidisciplinary issues in this field of research.</i>	
MAR6	Genomic and metagenomic insights into phytoplankton-bacteria interactions Gwenael Piganeau - Laboratoire de Biodiversité et Biotechnologies Microbiennes (LBBM) – Banyuls, Occitanie	
	<i>The survival and growth of most phytoplanktonic microalgae depend on the uptake of compounds, such as vitamins, synthesized by heterotrophic marine bacteria. This project aims at exploring the genomic basis of mutualism in phytoplankton-bacteria interactions by taking advantage of the extensive culture collection available in the host laboratory, and combining state-of-the-art multi-omics analyses with experimental evolution experiments.</i>	
MAR7	Behavioral ecology, developmental physiology, and neuroendocrinology of a metamorphosing reef fish Marc Besson - Biologie Intégrative des Organismes Marins (BIOM) – Banyuls, Occitanie	
	<i>The metamorphosis of marine fishes is critical for population replenishment and resilience but this transition is vulnerable to disruption by anthropogenic stressors. Through a multidisciplinary approach, we will examine the inner molecular and developmental mechanisms responsible for the behavioral and morphological impairments caused by stressors during the metamorphosis of the spiny chromis. This project will unveil critical ecological and conservation knowledge to protect fish replenishment.</i>	
MAR8	Coevolution of head muscles and associated motoneurons Stéphanie Bertrand - Biologie Intégrative des Organismes Marins (BIOM) – Banyuls, Occitanie	
	<i>The objective of the project is to bring insights into how the complex vertebrate head appeared during evolution. The candidate will focus on the mesodermal component that forms the head muscles and the neurons controlling their activity. For this purpose he/she will use the cephalochordate amphioxus as a model system and study how the oropharyngeal muscles and motoneurons develop by using several approaches (scRNA-seq, retrograde labelling, ISH, immunostaining, CRISPR/Cas9, behavior analysis).</i>	
MAR9	Deciphering evolutionary and developmental trajectories towards the vertebrate body plan: a chondrichthyan reference Sylvie Mazan - Biologie Intégrative des Organismes Marins (BIOM) – Banyuls, Occitanie	
	<i>Early embryonic architectures and cell types extensively diverge across vertebrates, yet they converge towards a highly conserved body plan, which becomes evident by gastrulation. The project aims at deciphering their underlying unity, focusing on a cartilaginous fish, the catshark Scyliorhinus canicula, and using a scRNA-seq based approach. These data should provide a comparative reference, enlightening ancestral cell states and transitions, obscured by taxa-specific diversifications.</i>	

MSCA Postdoctoral Fellowships at Sorbonne University

Call for expression of interest 2024

MAR10	Comparative study of peripheral nervous system formation in ascidians: conservation, drift and variability Sébastien Darras - Biologie Intégrative des Organismes Marins (BIOM) – Banyuls, Occitanie	
	<p><i>While EvoDevo has largely focused on the identification of conserved mechanisms regulating the formation of homologous structures, a wide range of changes may occur in the course of evolution without systematic phenotypic consequences. The current state of biology allows to access the diversity of species to document the evolution of developmental mechanisms. The project will use ascidians as models to address this question using functional genomic approaches.</i></p>	
MAR11	Ocean carbon storage under environmental changes and its effects on marine ecosystems Steeve Comeau - Laboratoire d'Océanographie de Villefranche (LOV) – Villefranche, Provence-Alpes-Côte d'Azur	
	<p><i>To mitigate climate change, it is imperative to reduce greenhouse gas emissions and remove CO2 from the atmosphere. We are seeking candidates to work on Marine Carbon Dioxide Removal (mCDR), a set of techniques designed to exploit or enhance the ocean's capacity to remove CO2 from the atmosphere. We are particularly interested in candidates willing to work on either 1) blue carbon in the Arctic and the Mediterranean Sea or 2) the effects of ocean alkalinity enhancement on marine communities.</i></p>	
MAR12	PLAnktonic Carbon Roads to the Deep Ocean Lars Stemann - Laboratoire d'Océanographie de Villefranche (LOV) – Villefranche, Provence-Alpes-Côte d'Azur	
	<p><i>Carbon export to the deep sea results from numerous individual interactions between and among organisms and sinking organic particles. Water motions stir vertically and horizontally all components of the oceanic soup. These coupled bio-physical processes determine, among other properties, the depths at which the carbon will be stored in the long term. The aim of the proposal is to host a young scientist interested to study these processes using the global observation of in situ imaging sensors.</i></p>	
MAR13	Assessment of the drivers of the ocean Carbon flux attenuation using profiling float Matthieu Bressac - Laboratoire d'Océanographie de Villefranche (LOV) – Villefranche, Provence-Alpes-Côte d'Azur	
	<p><i>This project aims at dissecting the Biological Carbon Pump, with a focus on mesopelagic processes responsible for the dramatic decrease in C flux with depth. Profiling floats equipped with a newly-developed sensor and existing methods will be used to autonomously quantify these microbially- and zooplankton-mediated degradation processes in 2 contrasting ocean regions: the NW Mediterranean and area around the Kerguelen Islands. These float-derived estimates will be combined with model simulations</i></p>	
MAR14	Towards a better understand on marine plankton diversity and its response to climate change Sakina-Dorothee Ayata - Laboratoire d'Océanographie et du Climat (LOCEAN) - Paris	
	<p><i>Marine plankton plays a central role in marine ecosystem functioning and global biogeochemical cycles. Its diversity and biogeography is highly sensitive to environmental variables. At the LOCEAN, we can provide expertise in analysing marine plankton data (especially using imaging or omics data) and in modelling plankton ecosystems using statistical models (such as species distribution model) or dynamical model (biogeochemical models like PISCES). We also have expertise in trait-based approaches</i></p>	