ACADEMIC POSITIONS

JOB DESCRIPTION

- **JOB TITLE/PROFILE**

PhD in Microbial Oceanography / 18-month Postdoc position

- **RESEARCH FIELD(S)**[1]

Environmental Science, Microbiology, Biogeochemistry, Oceanography

- **JOB DESCRIPTION**

The Ocean Sciences Institute with A*midex is funding an 18 month Post Doctoral position to contribute to the MANIOC: iMpact of particle microbial colonisation on Nitrogen cycling in the OCean Research Project.

Biological dinitrogen (N2) fixation is a fundamental marine process sustaining primary productivity, the microbial engine that captures CO2 mitigating climate change. Through this reaction, N2 is converted to biologically available ammonia. This process is carried by a group of microorganisms known as diazotrophs, mainly attributed to cyanobacteria, such as Trichodesmium or UCYN-A. However, recent studies have pointed out the wide distribution and potential contribution to the ocean nitrogen budget of non-cyanobacterial diazotrophs (NCDs) including bacteria and archaea, whose taxonomy, morphology or metabolic activity are yet to be explored. Contrary to cyanobacteria diazotrophs, NCDs cannot photosynthesize, which renders them dependent on other organic matter sources to meet their nutritional requirements. NCDs are thought to live associated with organic sinking particles, microbial populated particulate marine aggregates which play a crucial role in sinking and sequestration of organic matter in deep waters. This sinking process controls the oceanic carbon cycling and export, but the extent to which microbial processes influence particle degradation and export remains unresolved. Because the microbial colonization of particles has a direct effect on the global carbon budget, the activity and lifestyle of NCDs would thus link both the carbon and nitrogen cycles in the ocean. MANIOC project will apply an interdisciplinary approach combining microbial oceanography, nanotechnology, genomics, mass spectrometry and modelling to reveal how the phylogeny and metabolism of NCDs is linked with the structure of particles in the ocean. Together, these findings will provide new insights into the identity, lifestyle and colonizing structure of the unexplored particle-associated NCDs, thus improving our understanding of their contribution to fluxes of nitrogen and carbon from surface to deep-oceans, key to accurately modelling their role in global biogeochemical cycles.

[1] **Social Sciences** - Law, Education, Economics, Social Science, Psychology - **Political Science** - Political Science - **Computational Sciences** - Computer Science, Mathematics - **Engineering** - Architecture and Design, Engineering - **Natural Sciences** - Biology, Chemistry - **Physical Sciences** - Physics, Space Science - **Environmental Sciences** - Agricultural Science, Geosciences - **Humanities** - Theology, Philosophy, Literature, Linguistics, History, Anthropology, Arts and Culture - **Medical Sciences** - Medicine

- **QUALIFICATIONS/SKILLS/EDUCATION & RESEARCH REQUIREMENTS**

We are looking for a candidate with a PhD in Oceanography, Limnology or Microbial Ecology with solid skills in molecular biology methods (amplicon sequencing, metagenomics, CARD-FISH) and bioinformatics. The project includes laboratory work with cultures and a 1-month cruise in the North Atlantic onboard the R/V Pourquoi Pas in the frame of the project APERO "Assessing marine biogenic matter Production, Export and Remineralization: from the surface to the dark Ocean" led by C. Tamburini, J. Memery and L. Guidi and the project ARMORIC "Assessing the Role of cheMolithoautotrOphy on caRbon fluxes in the mesopelagIC realm" led by F. Le Moigne. Visits to Stockholm University are planned for bioinformatics analyses in collaboration with Dr S. García, leader of the Miint Lab.

- **APPLICATION DEADLINE**

15th of May 2022. International candidates are encouraged to apply

- **STARTING DATE**

The position is available for 18 months ideally starting in October-December 2022

- **JOB LOCATION**

Mediterranean Institute of Oceanography (MIO), Marseille, France
Including short visits to Stockholm University (SU), Stockholm, Sweden

- **REQUESTED DOCUMENTS OF APPLICATION**

Letter of motivation, CV and 2 reference letters.

- **CONTACT TO APPLY**

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