

Inter-organism interaction within marine iron-rich microbial mats: Analyses by global and AI-assisted quantitative microscopy approaches

Keywords: Environmental microbiology– Organisms Interaction – Quantitative microscopy – Omics – Marine microbial mats

Summary

The thesis will focus on the study of the microbial diversity and functional interactions between microorganisms inhabiting marine iron-rich microbial mats collected from the MEUST site (Mediterranean Eurocentre for Underwater Sciences and Technologies) of the EMSO-WesternLigurian observatory at 2450 m depth. The study of interactions between the microorganisms that inhabit these mats is of great importance to understand the functioning of these marine ecosystems and the coupling between the Iron, Sulfur, and Nitrogen cycles. The study will combine both genomic and post-genomic analyses as well as new AI-assisted quantitative microscopy. It will also permit the validation of a new powerful microscopic tools to quantitatively study natural complex microbial planktonic and sessile communities.

The co-supervisors

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Location

MIO, Luminy Campus, Polytech Bât E, Marseille, France
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Doctoral school

Environnemental Sciences (ED 251), Aix-Marseille Université

Expected profile of the candidate

The PhD candidate must have a strong background in microbiology (cultivation, DNA/RNA/Protein extractions,...) and in bioinformatics (Omics data analyses). Skills in molecular biology (nucleic acid preparation, PCR, ...) will be appreciated.