

**Funded PhD studentship in Marine Microbial Ecology**  
**under a cotutelle agreement between the *University of Stirling* (Scotland, UK) and the *University of Mons* (Belgium)**

**Name of the project: OCEANCLOCK**

Light/dark cycle in picoplankton in response to environmental change



Applications for a 3-year PhD studentship in Marine Microbiology and Proteomics, under a cotutelle agreement between the University of Stirling (Scotland, UK) and the University of Mons (Belgium) have now opened for entry in October 2017.

The PhD will study the day/night cycle in our oceans (find a summary of the project below). The detailed project will be designed with the PhD supervisors and the applicant. It will include skills in microbial ecology, physiology, proteomics and big data analysis. Feel free to contact both supervisors for any questions you might have (see contact details below).

**Project Summary: OCEANCLOCK**

The day/night cycle experienced by virtually all life on Earth is of enormous biological importance in that it imposes temporal structure on ecosystem productivity. In the World's oceans about half of photosynthesis and the bulk of life-sustaining nutrient cycling are carried out by the smallest organisms; the picoplankton.

This diverse community includes cyanobacteria known to have highly regulated circadian rhythms and also heterotrophic microbes not suspected to display diel rhythmicity but which are nonetheless dependent on the primary producers. To what extent picoplankton communities are collectively entrained by day/night cycles, how this influences their population structure, regulates their physiologies, and impinges on species interactions are questions of immediate urgency.

Student will use a novel experimental approach using comparative metaproteomics, enabling protein expression in photosynthetic and heterotrophic bacteria to be quantified several times during the day, in order to closely observe changes in the microbial compartment. These detailed regulations occurring at the cellular level will be placed in the context of studies on key

biogeochemical cycles to formulate predictive mathematical models. This interdisciplinary approach will innovate the analysis of the network of interactions between microorganisms during the day/night cycle and lead to vital advances in our understanding of the functioning of marine ecosystems within the context of global change.

The PhD student will join a dynamic team of researchers in both partner Institutions under the supervision of Pr. Ruddy Wattiez (University of Mons; [http://portail.umons.ac.be/fr/universite/facultes/fs/services/institut\\_bio/proteomique\\_microbiologie/pages/default.aspx](http://portail.umons.ac.be/fr/universite/facultes/fs/services/institut_bio/proteomique_microbiologie/pages/default.aspx)) and Dr. Sabine Matallana Surget (University of Stirling (<https://www.stir.ac.uk/people/28474>)).

A joint-doctoral degree will be delivered by the two partner institutions.

The deadline for the applications is the **21<sup>st</sup> of May**. There is no restriction regarding the nationality of the applicants, however the applicant **must be fluent in spoken and written English** (English proficiency tests needed for non-native English-speaking applicants) and French would only be considered as a plus.

Thanks for sending a CV, and a cover letter at the following emails:  
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