

ESR3 - PhD scholarship in Fluid dynamics, evolution, and ecology of flagellate foraging

The Centre for Ocean Life at DTU Aqua, Technical University of Denmark, offers a PhD scholarship in 'Fluid dynamics, evolution, and ecology of flagellate foraging'. The PhD project is funded by the Innovative Training Network ITN PHYMOT.

Unicellular nanoflagellates play a key role in microbial food webs, by eating microbes, and by themselves being prey to zooplankton. The action of their flagella generates feeding currents to enhance prey encounter rates but the feeding flows at the same time exposes the flagellates to their rheotactic (flow sensing) predation predators. The evolution of the highly diverse flagellar arrangements, beat patterns and kinematics found among flagellates in the ocean is the result of the often-conflicting needs to feed, survive, and move. The project aims at exploring and quantifying foraging trade-offs in nanoflagellates with diverse flagellar arrangements. Depending on the expertise and interests of the candidate, the PhD project can focus on different aspects of this topic, from CFD modelling and quantification of feeding flows by particle tracking or μ -PIV, to microscopic observations of foraging behavior or assessment of predation risk by incubation experiments and observations. Expert supervision is available on all aspects.

The student will be part of the cross-disciplinary *Centre for Ocean Life* (www.oceanlifecentre.dk) at DTU Aqua as well as the EU *International Training Network, PHYMOT* (<https://etn-phymot.eu/>). The Centre is a collaborative effort between biologists, physicists and mathematicians to develop a fundamental understanding and predictive capability of marine ecosystems with currently about 20 young scientists (PhD and Postdocs) associated. They are working on various aspects of marine life while collaborating through weekly science meetings, annual science retreats, numerous working groups, and collaborative projects. The international training network PHYMOT comprises 13 academic and private partners, spanning eight EU countries. The scientific objective is to understand the physics of cell motility, from single cells to collective behavior. Cell swimming underpins a wide range of fundamental biological phenomena from microbial grazing at the base of the food web, to parasitic infections, and animal reproduction. The student will spend research stays at PHYMOT partners.

Qualifications: We envisage a biologist, physicist, engineer or similar with interest in ecology and/or biophysics. Candidates should hold a MSc degree (or something equivalent) in biology, engineering, or similar.

Approval and enrolment: PhD scholarships are subject to academic approval, and the candidate will be enrolled in one of the general degree programmes of DTU. For information about the general requirements for enrolment and the general planning of the PhD studies, please see the [DTU PhD Guide](#).

Salary and terms of employment: The salary and appointment terms for the *PhD student* are consistent with the current rules for PhD students, with additional mobility and family allowances according [regulations of appointment and remuneration](#) for Marie Skłodowska Curie Fellows. The period of employment is 3 years. The successful candidate is expected to start early 2021 or soonest thereafter. Candidates that complete their MSc before then can apply.

Further obligations: The student is expected to travel to network partners for secondments and a mini-project for durations of a few days and up to 2-3 months. In addition, the student is expected to participate in outreach activities such as YouTube videos, social media updates (twitter, facebook), participation in public events, as well as dissemination to popular press.

Funding conditions: Candidates must not have resided or carried out their activities - work, studies, etc. - in Denmark for more than 12 months in the 3 years immediately before starting the PhD.

Further information: For further information about the position and possible projects please contact Professor Thomas Kjørboe (DTU Aqua, e-mail: tk@aqu.dtu.dk).

Please do NOT send applications to the above e-mail addresses and follow the electronic application and submission procedure as explained below.

Application procedure: Click [here](#) and open the link "apply for this job online" at the bottom of the new page and fill in the application form and attach your application, CV, publication list, two letters of recommendation, possible outline of project ideas, and other material that you would like to be included in the evaluation.

Further you must attach the following documents:

- Grade transcripts and BSc/MSc diploma

- Excel sheet with translation of grades to the Danish grading system (see guidelines and excel spreadsheet [here](#))

Candidates may apply prior to obtaining their MSc degree, but they cannot begin their scholarship before having received their MSc degree.

Applications and enclosures received after the deadline will not be considered.

All interested candidates irrespective of age, gender, race, disability, religion or ethnic background are encouraged to apply.

Selection process: The integration of refugees is an EU priority and we will ensure equal opportunities to the researchers whose scientific careers have been interrupted. To ensure a gender balance in the project and work towards the Commission's own policies on narrowing the gap between the genders in research, should two applicants be found to be equally qualified the preference will be given to the one that will balance the gender distribution in the entire Network. The selection process will be carried out by a temporary Selection Committee constituted by the Coordinator of the ITN and the supervisors. Evaluation criteria include: Scientific background (with particular focus on theoretical physics), previous publications, capacity for creativity and independent thinking and leadership, mentoring and presentation abilities.

Protection of personal data: The personal data of the applicants will be handled in compliance with applicable EU and national law on data protection (GDPR).

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