MARIE SKŁODOWSKA-CURIE ACTIONS ITN "MixITiN" Early Stage Researcher (PhD Fellowship) in Plankton Research between UK and France

College/School:	***College of Science***
Department/Subject:	***Biosciences***
Salary:	**£29046 per annum (rate is fixed by the sponsor, to vary with £-€ exchange rate).**
Hours of work:	***Full time (35 hrs per week)***
Contract:	**Fixed term position for 36 months duration**
Location:	**This position will be based at the Singleton Campus Swansea (UK) and locations in Europe**

Introduction

This is a great opportunity for a candidate interested in developing a suite of integrated skills to work in marine science. MixITiN ESR6 will work between Swansea University (UK) and Station Biologique de Roscoff (Universite Pierre et Marie Curie; France) to enhance our understanding of the ecophysiology of a specific group of mixotrophic plankton that maintain symbiotic microalgae growing within themselves. These organisms play an important role in ecology (including harmful algal blooms), and also as indicators eutrophication and of climate change.

The first two years of the position will focus on experimental field-work in France and data analysis and modelling implementation in Swansea. The final year secondment will be at Deltares (The Netherlands) for gaining skill-sets associated with coastal management. The postholder will be a numerate early career scientist with a good understanding of plankton ecophysiology (primary and secondary production) and an interest in developing mechanistic models to consolidate and build knowledge into a form suitable for exploring trophic dynamics and climate change impacts.

This project is one of 11 within the MixITiN project, which collectively aims to bring the paradigm for marine pelagic production into the 21st century through incorporation of mixotrophy into mainstream marine research. Please see the project website at www.mixotroph.org

All 11 ESRs will be registered for a 3yr PhD with one of the MixITiN consortium universities.

This position is expected to start as soon as possible but no later than mid-July 2018. It will have a duration of 36mo. ESR6 will be seconded to allied institutes and partners for periods of 2-3mo per year. All ESRs will also participate in programmed consortium network-wide training workshops and dissemination events (e.g., conferences).

More details for the ESR6 post are given below. ESR6 will be working in close collaboration with ESR4 (see http://www.mixotroph.org/esr-projects/).

Project Title:
Life in planktonic greenhouses; a systems dynamics approach.

Primary Supervisor:

Dr Aditee Mitra (MixITiN programme coordinator)
https://www.researchgate.net/profile/Aditee_Mitra

	Objectives: ESR6 will explore the ecophysiology of endosymbiotic mixotrophs (eSNCMs) such as Rhizarians and green *Noctiluca* that operate as planktonic greenhouses. Secondments: E6.S1 Host: Station Biologique de Roscoff (Universite Pierre et Marie Curie; France); supervisor Dr Fabrice Not; 2mo in Yr1. Purpose: field data collation. E6.S2 Host: Station Biologique de Roscoff (Universite Pierre et Marie Curie; France); supervisor Dr Fabrice Not; 2mo in Yr2. Purpose: model validation against field data. E6.S3 Host: Deltares; supervisor Dr Willem Stolte (Netherlands) for 3mo in Yr3. Purpose: coastal management regimes and impact on eSNCMs. For further project and host-specific information please visit the following web sites: http://www.mixotroph.org/ , http://www.swansea.ac.uk , http://www.swansea.ac.uk/staff/science/biosciences/a.mitra/ , http://www.sb-roscoff.fr/en , http://www.sb-roscoff.fr/en/not-fabrice/192 , https://www.deltares.nl/en/, http://deltares.academia.edu/WillemStolte
Background information	The conceptual basis upon which management tools for our ocean, seas and coasts have operated are out-of-date. Development of management tools and policies to predict fish production and global change in marine waters operates within a paradigm that builds on a simple division between "plant-like" phytoplankton and their main consumers, the microzooplankton at the base of the food chain. Recently research led by the applicants of the MixITiN programme has shown that this plant-animal paradigm represents at the least a gross simplification, if not a falsehood. The new revised paradigm recognises that most phytoplankton and as much as half the microzooplankton actually combine both plant-like photosynthesis and animal-like consumer activity within the same single-cell. This form of nutrition, "mixotrophy", supports the growth of organisms important for food chains and biogeochemical cycles removing atmospheric CO_2; mixotrophs are also causative agents in harmful algal bloom events. As a consequence of this revised paradigm, traditional laboratory and field research approaches, management policies and allied computer modelling tools, are arguably no longer fit for purpose. The objective of MixITiN is to develop and deploy new methodologies for researching, monitoring and modelling the base of the mixotroph-centric marine food chain to aid in the updating of environmental management tools and policies. The objectives will be delivered by a team of 4 universities (Swansea University, Kobenhavns Universitet, Universite Libre De Bruxelles, Universite Pierre et Marie Curie), 3 research institutions (Alfred-Wegener-Institut, Consejo Superior de Investigaciones Científicas, Hellenic Centre for Marine Research) and 3 non-academic providers (AP Marine, Deltares, Fundacion AZTI), from 9 countries (Belgium, Cyprus, Denmark, France, Germany, Greece, Netherlands, Spain, UK). In addition to project specific training, all the 11 MixITiN PhD Fellows (Early Stage Researchers, ESRs) will be trained in multiple skill-sets including molecular techniques, field and laboratory techniques, ecophysiology, simulation modelling, policy making, environmental management, public and media engagement. Training will be provided in multi-national and multi-disciplinary centres of excellence, with comprehensive engagement of academics as well as non-academics. This will enable all the Fellows to gain

	employment in a range of different sectors such as consultancy, government, academic, or allied industries. The synergy of training approaches provided to the ESRs will raise their capabilities and progress the field beyond the current state-of-the-art. **General enquires concerning the MixITiN programme should be submitted to the Project Coordinator, Dr Aditee Mitra, via** a.mitra@swansea.ac.uk
Main Duties	1. To undertake the research identified for ESR6 in the MixITiN project "*Life in planktonic greenhouses; a systems dynamics approach*", exploring the ecophysiology of endosymbiotic mixotrophs such as Rhizarians and green *Noctiluca* that operate as planktonic greenhouses using a combination of computer modelling and empirical research. 2. To help in delivery of MixITiN work packages WP1 (Project Management and Coordination), WP2 (Network-wide Training Activities), WP4 (Understanding triggers and consequences of mixotroph ecophysiology in marine foodwebs), WP5 (Mixotrophs as drivers of trophic dynamics & biogeochemical cycling), and WP6 (Dissemination, Outreach & Exploitation) to the satisfaction of the sponsor. 3. To liaise as required with relevant administrative committees and members of the MixITiN project on matters relating to the research programme. 4. To contribute to the overall activities of the research team and ITN as required, to include attending MixITiN network training activities and participating in scientific and public outreach dissemination activities.
	5. Pro-actively contribute to and conduct research, including gather, prepare and analyse data, generate original ideas and present results. 6. Prepare reports, draft patents and papers describing the results of the research, both confidential and for publication. 7. Be self-motivated, apply and use their initiative, aiming to determine suitable ways to tackle challenges and seeking guidance when needed 8. Interact positively and professionally with other collaborators and partners within the Consortium and beyond as appropriate such as in public organisations, and academia. 9. Contribute to Consortium organisational matters in order to help it run smoothly and to help raise its external research profile. 10. Keep informed of developments in the field in technical, specific and general terms and their wider implication for the discipline area, commercial applications and the knowledge economy. 11. When requested act as a representative or member of committees, using the opportunity to extend their own professional experience. 12. Demonstrate and evidence own professional development, identifying development needs with reference to the Vitae Researcher Development Framework, particularly with regard to probation, PDR and participation in training events. 13. Maintain and enhance links with the professional institutions and other related bodies. 14. Observe best-practice protocols in maintenance and retention of research records as indicated by HEI and Research Councils records management guidance. This includes ensuring project log-book records are deposited with the University/Principal Investigator on completion of the work.
General Duties	15. To promote equality and diversity in working practices and maintain positive working relationships

	16. To conduct the job role and all activities in accordance with safety, health and sustainability policies and management systems, in order to reduce risks and impacts arising from the work activity 17. To ensure that risk management is an integral part of any decision making process, by ensuring compliance with the University's Risk Management Policy.
Person Specification	**Essential criteria:** E1. Early Stage Researchers (ESRs) must, by definition, have less than 4 years research experience at the date of signing the contract (measured from the date of award for their most recent taught degree). E2. ESRs must not yet have a PhD or be enrolled on one. E3. ESRs must not have resided, or undertaken employment (main activity) within the host country of the ESR for which they apply for more than 12 months in the last 3 years immediately prior to the reference recruitment date (1st March 2018). E4. Eligibility according to EU regulations. E5. BSc (minimum 2i grade equivalent). E6. Masters degree in science. E7. BSc or Masters-level degree in Biosciences, Ecology, Oceanography or a related discipline. E8. Excellent command of the English language (oral, writing). E9. Excellent numeric skills (data analysis &/or statistics &/or modelling). E10. Demonstrable ability to conduct research in line with the objectives of the project. E11. Evidence of planning skills to contribute to the research project. E12. Ability to work alone and also as part of a multidisciplinary team. E13. Willingness to work across complementary subject areas within the MixITiN science topic, and within public-facing media engagement. E14. Willingness to travel within Europe. **Desirable Criteria** D1. First class BSc degree and/or distinction in Masters degree. D2. Additional European language skills (at day-to-day conversational level) D3. Evidence of the ability to actively engage in and contribute to writing and publishing research papers, particularly for refereed journals. D4. Evidence of the ability to contribute to public and media engagement. D5. Computer coding, web page construction or similar skills. D6. Experience of mathematical modelling. D7. Experience of microbial research. D8. Evidence of commitment to Continuing Professional Development. Candidates should evidence that they meet ALL of the essential criteria as well as, where relevant, the desirable criteria. As part of the application process you will be asked to provide this evidence via a supporting statement.