IMPERIAL

Interdisciplinary PhD post (environmental fluid mechanics – environment and toxicology)

Plastic degradation during environmental transport

Applications are open for a PhD studentship (at UK Home fee tuition and UKRI stipend rate) at Imperial College London to start by October 2024 (or as soon as possible thereafter). The PhD project is in essence interdisciplinary and will investigate the environmental weathering of plastics occurring during their transport in fluvial and coastal environments. While the PhD will be based in the Civil and Environmental Engineering department, an important part of the work will also be conducted in the School of Public Health and regular annual visits to the Technical University of Munich (TUM) are planned (and funded). The student will benefit from world-class facilities and a world-leading and friendly research environment, both at Imperial and at TUM, as well as unique opportunities offered by the Imperial – TUM Joint Academy of Doctoral Studies (JADS).

PhD description:

The successful candidate will develop experimental physical models to simulate transport of plastics in the Hydrodynamics Laboratory at the Department of Civil and Environmental Engineering and analyse the degradation products (micro- and nanoplastic particles and other chemical substances) in specialised laboratories in the Environmental Research Group, both facilities located at Imperial. Two months a year, the PhD candidate is expected to do a stay in the group of Environmental and Climate Policy at the TUM, which will influence the choices of materials to test at Imperial in order to make the experiments more useful to inform policy.

By studying for a PhD through the Imperial – TUM JADS, you will be part of a larger collaborative programme that has been running since 2020 and will benefit from additional opportunities. As part of this ambitious programme, the successful PhD candidate is expected to:

- Be based at Imperial for most of the work, including regular meetings with Dr. Daniel Valero (Imperial, Hydrodynamics, PI) and Dr. Stephanie Wright (Imperial, Toxicology and Microplastics).
- Conduct annual stays of two months over the three years of the PhD at TUM with Prof. Miranda Schreurs (TUM, Environmental Policy, PI), who will also participate in intermediate meetings held online.
- Actively participate in the annual JADS symposium for the 2024-2025 PhD cohort, offering tailored training under the theme: “Health Resilience in a Changing Environment”.
- Graduate at Imperial, while benefitting from joint-degree programme benefits in terms of training and additional certification upon graduation.

The successful candidate is also expected to liaise with experts from different disciplines close to the project and project teams.

Requirements:

- A first-class degree (or internationally equivalent) either in environmental engineering (civil and mechanical are also welcome) or in analytical chemistry, physical chemistry, or other closely

related disciplines; and the willingness and capacity to learn about the other expertise is also a must.
- Excellent English writing and communication skills (e.g., IELTS 6.5 overall, minimum 6.0 in all components or TOEFL 92 overall and minimum 20 in all elements).
- Proficient MS Excel, programming and data analysis skills (Python, Julia, MATLAB or similar).

In addition, a competitive candidate would benefit from one or all of the following desirable (non-essential) qualifications:

- Experience in a fluid mechanics / hydraulics / coastal laboratory and use of camera systems.
- Experience in analytical chemistry or related laboratory.
- Experience in vibrational spectroscopy.
- Related research experience.

The successful candidate is expected to have the following soft skills:

- Proficient communication skills, being able to liaise with experts in different disciplines.
- Strong analytical and critical thinking abilities.
- Organizational skills and the capacity to manage multiple tasks concurrently and independently.

Funding and Eligibility: The studentship will provide funding for 3 years including tuition fees and a tax-free stipend at the standard UKRI London rate (£21,237 2024/2025 rate). Please, note that full funding is only available to Home (UK) students. The funding can also be used to partly support an international student.

How to apply: by sending the following documents to Dr Daniel Valero (d.valero@imperial.ac.uk) with e-mail header [JADS PhD Plastic degradation]:

- CV, including average grades and any relevant research experience (if any).
- Study transcripts.
- Cover letter, explaining their motivation and suitability for this PhD project as well as availability to start.
- Contact details of two academic referees.

Application via the Imperial College Registry is not necessary at this stage. Review of applications will be performed bi-weekly and continue until the position is filled. For further details, informal discussions and information about the project please contact Dr Daniel Valero (d.valero@imperial.ac.uk) and/or Dr. Stephanie Wright (s.wright19@imperial.ac.uk).