**Imperial College London – Technical University of Munich**

**(Imperial-TUM) Joint Academy of Doctoral Studies (JADS)**

CALL DOCUMENT AND GUIDANCE FOR APPLICANTS

**Theme for 2025: Particle Pollution and Human Health Challenge**

**Contact** **Details**

Academic Leads:

* Imperial College London – Prof. Bob Shorten, r.shorten@imperial.ac.uk, Professor of Cyber-physical Systems at the Dyson School of Engineering Design; Head of Department and interim Director of the Centre for Sectoral Economic Performance
* Technical University of Munich – Prof. Dr. Percy Knolle, percy.knolle@tum.de, Professor of Molecular Immunology, Founding Director of the Institute of Molecular Immunology at the School of Medicine and Health

Programme Management:

* Imperial College London – International Relations Office (Heather Kerst, h.kerst@imperial.ac.uk)
* Technical University of Munich – International Graduate School of Science and Engineering (IGSSE) (Dr.-Ing. Bettina Menschik, jads.igsse@tum.de)

Potential applicants are welcome to contact programme coordinators and academic leads with questions in advance of submitting an application.

1. **Background and Purpose**

This programme is one of a broad set of instruments that have been designed with the goal of bringing together **two of the world’s best universities** to respond **to societies’ greatest challenges**. The ***particle*** ***pollution and human health challenge*** of the [Imperial-TUM Centre *for Health Resilience in a Changing Planet*](https://www.imperial.ac.uk/news/261035/imperial-germanys-tum-launch-health-resilience/)is an immensely important step in this direction. The theme goes beyond scientific discovery; it's an opportunity to rethink the entire engineering design process. By integrating cutting-edge health research, emerging technologies, circular economy principles, and sustainable materials science, we can create solutions that are both economically viable and environmentally regenerative.

More than ever, Europe needs all its universities to be **beacons of innovation**, not just in the way we discover, but also in the way we protect and develop IP, accelerate the process of scientific translation, and stimulate and deliver value to industry and society. The TUM – Imperial alliance is perfectly placed to lead this charge. The specific goal of the JADS programme is to foster cross-disciplinary collaboration between TUM and Imperial in Engineering, Science, Medicine and Business.

1. **Joint Academy of Doctoral Studies (JADS)**

The Imperial-TUM Joint Academy of Doctoral Studies (JADS) is a collaborative doctoral programme and research flagship that brings together two of Europe’s most innovative universities to deliver cutting-edge science and jointly train the next generation of UK and German researchers.

The aim is to foster closer collaboration between the London and Munich research, innovation and education communities in fields that are highly relevant to both Imperial and TUM. JADS involves a competitive application process with a different theme for each cohort.

Launched in 2020, JADS has organised five cohorts to date: ‘AI, Healthcare and Robotics’ in 2020; ‘Mathematics of Information: Theory and application” in 2021; ‘Circular Economy’ in 2022; ‘Transition to Zero Pollution’ in 2023. In 2024, a first cohort with the topic of ‘Health Resilience in a Changing Environment” was established.

1. **Call for the 2025 Cohort and Theme**

The current call invites Principal Investigators (PIs) at TUM and Imperial to jointly put forward a research project that involves one doctoral candidate at TUM and one doctoral candidate at Imperial, which includes joint supervision plans and a built-in mobility programme.

The cohort is expected to start in January 2026 and will focus on the field of ***particle*** ***pollution and human health challenge***.

*Non-Communicable Diseases (NCDs) and environmental pollutants* – outdoor air pollution and increased contamination of the environment with micro/nanoparticles are responsible for increased morbidity and mortality worldwide. There is growing concern about a causal link to late-life dementia. The molecular links between particle pollution and human health are largely unclear. Working across key fields such as industrial production and transport – leading sources of emissions contributing to air pollution, micro/nanoparticle release, we aim to understand how environmental pollutants are changing, how exposure to different pollutants affects health for instance by induction of chronic inflammation and how to frame effective public policies to mitigate against such exposures. Of particular interest is the contribution of non-tailpipe emissions arising from transportation that contribute a substantial part to the pollution of our environment with micro/nanoparticles.

We are again interested in proposals from a broad range of disciplines, but especially welcome cross-disciplinary proposals from the fields of:

* engineering,
* science,
* business and medicine, e.g., solutions for sensors and other means of measuring micro- and nanoparticles and processing the data obtained,
* as well as biological models to study the impact of micro/nanoparticles on health.

Academics are encouraged to propose research projects that make human health and well-being more resilient in the evolving environment, that help develop:

* sensing technologies for micro/nanoparticles through different methodologies, ideally providing molecular information on their composition;
* an understanding of the mechanisms relevant for the development of inflammation and disease in response to challenge with micro/nanoparticles;
* modelling of micro/nanoparticle pollution and their impact on multicellular organisms;
* strategies to mitigate both the generation of microparticles in engineering systems as well as their collection;
* informed policy making in public health and micro/nanoparticle pollution.

All projects must involve researchers from both Imperial and TUM. Projects must also be **strongly interdisciplinary**.

The programme provides an opportunity for PIs to build or deepen research collaborations that can scale up projects quickly. The programme allows doctoral candidates to develop strong international research experience and networks early in their careers, which can support both research ambitions and career development.

PIs who apply for projects in this programme:

* must have a commitment to actively providing input and engaging in the various training and related opportunities provided by the programme, and
* support their doctoral candidates to take full advantage of online and in-person trainings and cohort-building activities.

PIs and doctoral candidates are encouraged to make the most of the collaborative programme benefits, including accessing complementary labs and data, innovation ecosystems, industry engagement, synergies with ongoing funded projects, and other complementary expertise to benefit the people and projects.

We expect to launch the new JADS cohort in December 2025, running for four years of doctoral studies at TUM and three years at Imperial.

Both institutions will provide cohort-building opportunities to support research and professional development.

**Key Elements and Criteria for the Call**

* Joint applications from researchers[[1]](#footnote-2) at Imperial and TUM, focused on projects in the area of ‘particle pollution and human health challenge’, from any faculty or school at both institutions;
* The same PI cannot submit more than two project proposals;
* Imperial candidates are required to spend significant time at TUM over the course of the PhD programme, e.g. 2-3 months a year over the course of the PhD programme, a period of 6 months or longer, or similar stays, that both support the project and allow the PhD candidate to take advantage of the in-person opportunities.
* TUM doctoral candidates are required to attend an extended stay abroad period at Imperial College London, which is an obligatory period covering 6 to 9 months. If the stay abroad period is less than 9 months, a justification is required and the foreseen budget will be adapted according to the reduced stay abroad period.
* TUM doctoral candidates will attend a subject-specific curriculum with additional training and seasonal school(s) offered by TUM, which will also be attended by Imperial doctoral candidates.
* Each selected project is to be supervised by two PIs (one at Imperial & one at TUM); and both PIs are expected to:
* Be actively involved in the supervision and contribute to the joint seasonal school programme through e.g. lectures and talks.
* Contribute to a midterm project report, which will be requested either as an oral presentation, as a video contribution or as a written report after two years of project duration (at TUM).
* Submit a final report at the end of the project (templates will be provided; TUM PIs).
* Annual joint “JADS Symposium,” organised by IGSSE (at TUM) and Imperial (annually taking turns) which both PIs and all doctoral students from both institutions are required to attend at least twice.
* TUM Doctoral Candidates are welcome to have regular meetings with the coordinating PostDoc, recommended every three to four months.
* Joint thesis examination committee for TUM Doctoral Candidates (but no joint degree – Imperial students will receive an Imperial degree, and TUM students receive a TUM degree).
* On IGSSE’s website, short descriptions of the projects will be published. It is the responsibility of the teams to keep these updated with the technical support of the IGSSE office.
1. **Number of Doctoral Projects and Funding**

The scheme aims to support a total of up to five joint doctoral projects for four years at TUM, and three years at Imperial. The projects will be selected by TUM and Imperial’s joint committee (see point 6 below). Each project will be underpinned by two PIs (one from TUM, one from Imperial) and two doctoral candidates (again, one from TUM and one from Imperial).

Applicants will be supported through their individual institutions, based on doctoral training stipends and relevant mobility and consumables funds.

At TUM, the funding for JADS scholarships (monthly €2,000 before 2027 and €2,200 from 1 January 2027 onwards), mobility (up to €12,000 € for stay abroad, and €5,000 travel), consumables (€4,000), budget for student assistants (€4,000) and related support is allocated via the IGSSE.

At Imperial, the funding of 50% for the PhD Home-fee studentships (UK Home fee tuition and UKRI stipend rate), and mobility (€3,000 per three-year project) is allocated centrally. Imperial PIs will be expected to secure funding for the other 50% of the studentship from their department, CDT or other funding source, in order to apply for this call and note the funding source in the application.  Imperial PIs are also expected to secure funding for any needed research project consumables and any reasonable additional mobility needs above what is allocated centrally.

1. **Call Timeline**

Call Opens: 1 September 2025

Call Closes: 15 October 2025

Notification Date: approx. 10 December 2025

Start of PhD projects: From January 2026, with PhD students to be recruited in first half of 2026.

1. **Evaluation**

Proposals will be independently reviewed and ranked by an Imperial-TUM Joint Committee, according to the following criteria:

* Scientific quality & originality of the project
* Scientific merit of the teams
* Interdisciplinarity
* Impact of the research in and beyond the field
* Convincing and well-structured plan for implementing collaboration and co-supervision of doctoral candidates
* Well-structured timeline for the exchange/stay abroad period(s), illustrating the benefit for the project
* Commitment from the PIs to actively engage with the programme’s training and development activities e.g., seasonal schools, annual JADS symposium, etc. and supporting doctoral candidates to fully engage in the opportunities provided by the programme
* Demonstrated track record of support and mentorship of doctoral candidates (if PIs have previously supervised doctoral candidates)
* Sustainability, e.g. identification of potential funding sources to grow and extend research projects
1. **How to submit a project proposal**

PIs from Imperial and TUM should jointly prepare and submit the fully completed Application Form, in electronic format (Microsoft Word or Adobe PDF), via this [online application form](https://collab.dvb.bayern/spaces/TUMjads/pages/1462377615/Application%2BCall%2B2025). Applicants should use the enclosed Application Form (see below) and follow the relevant guidance notes. Application forms need to be received at the end of the day the call closes in order to be considered in the review process.

1. **Reporting Requirements**

For successful proposals a yearly report on the activities carried out, visits and workshops attended, will be expected based on the work plans outlined in Section F of the Proposal Form.

**Project proposal submission FORM**

***This form must be completed using 10pt Arial font. Margins must not be adjusted.***

**The joint proposal must consist of the following parts, in one single file (maximum of 10 pages, excluding the parts J, L and M):**

1. **Institutional Details**

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| **Name of Principal Investigator (1)***(Note that the primary Supervisor’s institutional affiliation will determine candidate registration and award.)* |  |
| **Current position***(Note that applicants must fulfil eligibility requirements – see above)* |  |
| **Scholarly URL/Google Scholar** |  |

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| **Name of Principal Investigator (2)** |  |
| **Current position** |  |
| **Scholarly URL/Google Scholar** |  |

1. **Project Title and Acronym**

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| **Guidance**: Please provide project title and acronym |

1. **Abstract**

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| **Guidance**: Summary of the main goals of the project, in a clear and concise manner, for the benefit of reviewers. This summary should not exceed 1600 characters, including spaces. |

1. Description of the research project

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| **Guidance:** Description of the scientific project, how the project fits with the call’s theme for this application cycle, quality and originality of the project, interdisciplinarity, objectives, scientific methodology, expected results and their meaning and future perspectives. Explain the added value of the doctoral candidates’ projects in the overall project. Explain the relation between the project and the research themes of the laboratory**. Describe why the project requires and benefits from the Imperial-TUM collaboration. If there are existing collaborations between the two PIs/research groups, please briefly describe these in the proposal.** |

1. How does the project impact the current state-of-the-art and how does it aim to go beyond it?

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| **Guidance:** Describe how the intended collaboration and planned activities will advance the current state-of-the-art. |

1. Describe how the co-supervision will be planned and implemented

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| **Guidance:** Describe the planned activities in the framework of the project to implement the co-supervision of doctoral candidates and provide a timetable. If PIs have previously supervised doctoral candidates, please characterise the track record of support and mentorship of these candidates (supporting candidate’s or joint PI-candidate publications, etc.). Explain how these activities will help achieve the aims of the project. This part should include explicit lines regarding the planned travel of the PIs and the doctoral candidates to the other country and the expected period of stay in the partner University, and how it will complement and impact the activities planned. |

1. **Commitment to actively engaging with the programme’s training and development activities and supporting doctoral candidates to engage fully in the programme.**

**Guidance:** The programme aims to not only have collaborative projects with co-supervision but to jointly train and develop a cohort of doctoral candidates, to develop a uniquely engaged cohort rather than a collection of individual projects, which can help foster better outcomes for the projects and help develop a cluster of excellence. As such, PIs who apply need to confirm their commitment to actively engaging in online and in-person co-supervision activities and training opportunities including seasonal schools, the annual symposium, etc. Please note why this approach is appealing to you and your project. In addition, if you have any suggestions for training or other ways you might be able to engage with the cohort, beyond the research collaboration and co-supervision of the project, please do include these.

1. Timeline and milestones stay abroad period at Imperial

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| **Guidance:** A description of the structure and planned achievements for the stay abroad period at Imperial: The achievements can be, e.g., lab experiments, journal paper writing, scientific exchange and workshop preparation.Timeline: When should the stay at Imperial take place in relation to the project structure? Will the stay abroad be split into two periods, or will the doctoral candidate stay for 9 months all at once? Short description, why the planning makes sense with respect to the project achievements. |

1. Sustainability & “life after the project”

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| **Guidance:** A description of potential opportunities available for ensuring sustainability of project outputs beyond the end of the planned activities e.g. identification of potential funding sources to grow and extend research projects. Furthermore, a brief concept on how the collaboration has the potential to grow beyond the project’s timeline and expectations of wider scope. |

1. Data/Ethics/Deployment Considerations (if relevant)

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| Guidance: Does the project have any ethical implications? If yes, please describe them and how they are dealt with. |

1. Candidate Backgrounds

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| Guidance: Describe the feasible candidate backgrounds and how they are relevant for the project  |

1. Scientific quality of the teams (This section does not count towards the page limit)

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| Guidance: Please attach in annex a list of complete citations of no more than 10 publications related to the project for each team, including publications from previous doctoral candidates that have been supervised by the PI. |

1. Short curriculum vitae of Principal Investigators (This section does not count towards the page limit)

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1. N.B. Please note that at Imperial, only researchers who are permanent members of staff, and at TUM, only researchers whose contract extends beyond the four-year funding period and who can act as doctoral supervisors, can be named as Principal Investigators. [↑](#footnote-ref-2)