

Title: **MODELAIR-Ground breaking tools and models to reduce air pollution in urban areas**

Type of award PhD Research Studentship

Department Aerospace, Fluids and Aerospace Research Group

Salary Details £35,333 - £38,592 p.a. subject to confirmation

Duration 3 years

Eligibility Applicants should be from outside the UK and not have been here for any more than 12 months in the last 3 years

Start Date June 2023 or soon after

Project Overview

We have an exciting opportunity to appoint a Marie Skłodowska-Curie Early-Stage Researcher to carry out research on urban air quality as part of the EU-funded ModelAir (Ground breaking tools and models to reduce air pollution in urban areas).

MODELAIR is a Marie-Curie Doctoral Training Programme under H2020 European Research Framework, in collaboration with several Universities and research institute across Europe. The main objective of MODELAIR is to (i) to use high-fidelity databases to develop novel tools and models suitable for air-quality decision making; (ii) to gain further insight into the physics responsible for the pollutant-concentration and distributions within cities. The project will specifically address real-world applications of the knowledge and tools to urban areas in Bristol, Brussels and Madrid. The students will have access to our state-of-the-art boundary layer wind tunnel facility (<https://www.bristol.ac.uk/aerodynamics-research/facilities/boundary-layer/>) and a range of expertise the consortium. The students will receive training at Bristol and other partners' institution as part of ModelAir and will have the opportunity to present the results at relevant international conferences.

Research Overview

Two PhD positions are open for applications under MODELAIR:

1. PhD1 will examine the impact of building design on the air pollution using both wind tunnel and open field measurements. The wind tunnel measurements will consider different wind flow speeds, direction, boundary layer thickness, terrain and other geological features; the open-air measurements will quantify pollution particles and airborne particulate matter within the city landscape.
2. PhD2 will examine the particle dispersion pattern and transport mechanisms for closely packed urban environments and the effect of the pollutant release source. With the building blocks placed very closely, the urban air flow will be subject to substantial fluid-structure interaction effects. A comprehensive experimental characterization of the effect of pollutant source on closely packed urban models will be carried out, with both flow and particle transport measurements to understand the interaction of large-scale flow structures with the building blocks and the corresponding effects on particle dispersion.

The PhDs will be supervised by teams from the University of Bristol and Air Quality Consultant with a combination of academic and industrial background. Also, as part of the Marie-Curie training network, the candidates will interact regularly with other PhDs in the partner organisations and are expected to take secondments at University of Madrid and KTH Sweden.

Candidate Requirements

Applicants must hold/achieve a minimum of a master's degree (or international equivalent) in a mathematics or engineering discipline. Applicants without a master's qualification may be considered on an exceptional basis, provided they hold a first-class undergraduate degree. Please note, acceptance will also depend on evidence of readiness to pursue a research degree.

If English is not your first language, you need to meet this profile level:

Profile E

Further information about [English language requirements and profile levels](#).

Basic skills and knowledge required in aerodynamics, fluid mechanics and programming.

Informal enquiries

For any questions, please contact [Professor Mahdi Azarpeyvand](#) or [Dr Nick Zang](#).

For questions about the **application** process please contact **CAME** Postgraduate Research Admissions came-pgr-admissions@bristol.ac.uk

Application Details

To apply for this studentship, submit a PhD application using our [online application system](#) [www.bristol.ac.uk/pg-howtoapply]

Please ensure that in the Funding section you tick "I would like to be considered for a funding award from the **Aerospace Engineering** Department" and specify the title of the scholarship in the "other" box below with the name of the supervisor.