Project Reference: CTE_EMERC_Haydar_003_25-26

About the Project

This is an exciting PhD opportunity within the College of Technology and Environment (CTE) at London South Bank University (LSBU). The successful candidate will receive a tuition fee waiver beginning in September 2025 for 4 years, including the write-up year.

Project Title

The design of sustainable structures incorporating composite panels for reducing CO2 emissions from buildings and for attenuating noise

Project Overview

Environmental noise is an important public health issue, featuring among the top environmental risks to health. It has negative impacts on human health and well-being and is a growing concern among both the public and policymakers in Europe. The design of effective acoustic insulation and noise attenuating materials is of great importance in ensuring that the ever-expanding residential and commercial infrastructure associated with increasing development, industry and population do not impact negatively on the normal everyday use of the built environment. In addition, there is an increased need to produce practical designs that also incorporate benefits to the environment and to reduce the impact on the health and lifestyles of people. Meeting the combined demands of increased population density and limited resource availability has become a key challenge which the structural and infrastructural designers of this century are facing.

This project proposes to design and develop sustainable structures/panels embedding resonators to attenuate sound transmission and reduce CO_2 emissions from buildings. It is aimed to develop sustainable materials to protect human health from exposure to building and environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, heat pumps, ventilation, wind turbine noise, and leisure noise while investigating its application in reducing the amount of CO_2 from buildings released to atmosphere. This project is interdisciplinary and require knowledge and skills in acoustics, material, structural and acoustical tests of materials, and finite element modelling.

Who Are We Looking For?

- Open to any UK or international candidates. Starting in September 2025.
- The candidate must meet the minimum entry requirements for our PhD programme by clicking the 'Apply' link.
- *Previous research experience in acoustics, design and development of materials, measurement and instrumentations, and finite element analysis are essential.*
- *A keen interest in COMSOL/Ansys, MATLAB, and data analysis is highly desirable.*

Selection Criteria:

- Academic Qualifications - You should normally have at least a 2.1 honours degree from a UK University or an equivalent qualification in engineering, computer science, etc.
  - Research and Analytical Skills – Ability to research subjects using libraries, the internet, and other information resources, ability to conduct comprehensive literature reviews, experience in qualitative and quantitative data collection and analysis, strong research design and methodology skills, ability to independently collaborate with stakeholders, and excellent academic writing and communication skills.
  - **Professional Skills -** Project management and organisational skills, ability to work independently and as part of a team, problem-solving and critical thinking skills, and adaptability and willingness to learn new skills.
  - Software and Modelling Experience - Experience developing and utilising spreadsheet-based models (e.g., Microsoft Excel) to an advanced level. Experience with other software packages relevant to the discipline would be an advantage.

- Communication Skills—The candidate should be highly motivated, able to collaborate, have good visual, oral, and written communication skills, and communicate the work's outcomes to commercial, industrial, and scientific audiences.
- Teamwork and Collaboration - Ability to work with industrial and academic supervisors.
- Language Proficiency - Overseas applicants must have a minimum English language IELTS score of 6.5, with at least 5.5 in any of the components.
- Understanding of Equality and Diversity - Able to demonstrate an understanding of equality and diversity and their practical applications.
- Visa and Legal Requirements - Non-EU/EEA nationals may need to apply to the Foreign and Commonwealth Office (FCO) for clearance from the Academic Technology Approval Scheme (ATAS).

Training & Development Opportunities
Doctoral students at London South Bank University (LSBU), through the London Doctoral College (LDC), benefit from a rich and structured training environment designed to support academic excellence and professional development. All PhD candidates are offered a comprehensive programme of workshops and seminars covering essential research skills, including research design, data analysis, academic writing, ethics, and project management. These sessions aim to support students through every stage of their doctoral journey—from literature review and methodology to thesis completion and viva preparation. Postgraduate researchers can access advanced, discipline-specific training aligned with their research focus. LSBU's doctoral training environment is designed to build deep expertise in a chosen research area and the broader skills necessary for successful careers in research, industry, and beyond.

About the College
The College of Technology and Environment (CTE) at London South Bank University (LSBU) is a newly formed academic college, launched in January following the university's recent reorganisation. Led by Executive Dean Professor Chris Harty, CTE brings together four schools: Architecture & Planning, Construction, Property & Surveying, Engineering & Design, and Computer Science & Digital Technologies. The college fosters a collaborative and interdisciplinary environment, addressing the complex challenges of the built and digital environments. CTE strongly emphasises research, with doctoral students playing a key role in shaping and contributing to the college's research agenda. CTE prepares students to become future leaders through innovation, industry partnerships, and a commitment to sustainability. With a focus on real-world impact and academic excellence, the college is set to drive forward LSBU's vision of delivering applied knowledge that transforms lives and communities locally and globally. The university has five centres, and any academic staff and students in the college can join. These research centres are described below.

About the Energy, Materials and Environment (EME) Research Centre
The Energy, Materials and Environment Research Centre leads interdisciplinary research on sustainable energy systems and material innovation. We address climate change by developing whole energy systems, spanning generation, storage, distribution, and consumption. Our research draws from materials engineering, policy, and societal impact to understand and influence the complex relationships between energy, economy, and society. With expertise in multiscale systems and cross-sector collaboration, we aim to shape policy and technology that supports the transition to a low-carbon future. Our work informs sustainable development strategies that balance environmental, economic, and social needs across local and global contexts.

For Enquiry
Contact Person
Before applying, please contact the main supervisor, **Dr Haydar Aygun**, Associate Professor of Acoustics at the School of Engineering and Design, College of Technology and Environment.

E-mail : aygunh@lsbu.ac.uk
Phone: 0044 7538278977

In your email, include:

- Details of your current level of study and academic background.
- A summary of any relevant experience.
- A brief paragraph about your motivation for pursuing this PhD project.

Fee Waiver

The fee waiver is available for 4 years (48 months), including the writing-up year, examination period, and submission of the corrected thesis.

How to apply

Applications should be submitted via the programme page using the links below:

(Please select the one that applies to your programme)
https://www.lsbu.ac.uk/study/course-finder/engineering-built-environment-phd

You should upload the problem statement, qualifications, CV, and other relevant documentation to the application portal. Remember to state the correct reference number and the appropriate supervisor.