



Discipline : Building Engineering – Electronics - Environment

Line Manager : Dr. Marie VERRIELE (Associate Professor, HDR, IMT NE France), Pr.Ilinca NASTASE (Professor, UTCB Romania)

Workplace : Douai (France) and Bucarest (Romania)

Type of contract and duration : PhD fellowship – co-supervised

CONTEXT :

Public establishment belonging to IMT (Institut Mines-Télécom), placed under the supervision of the Ministry of Industry, IMT Nord Europe has three main objectives: providing our students with ethically responsible engineering practice enabling them to solve 21st century issues, carrying out our R&D activities leading to outstanding innovations and supporting territorial development through innovation and entrepreneurship. Ideally positioned at the heart of Europe, 1 hour away from Paris, 30 min from Brussels and 1h30 from London, IMT Nord Europe has strong ambitions to become a main actor of the current industrial transitions, digital and environmental, by combining education and research on engineering and digital technologies.

Located on two main campuses dedicated to research and education in Douai and Lille, IMT Nord Europe offers research facilities of almost 20,000m² in the following areas:

- Digital science,
- Processes for industry and services,
- Energy and Environment,
- Materials and Processes.

For more details, visit the School's website : www.imt-nord-europe.fr

Energy and Environment research area focuses on the physicochemistry of trace species in the air and its fields of application. They concern both outdoor ambient air (troposphere) and indoor air (premises and confined spaces). The aim is to achieve a better understanding of the processes of generation and transformation of air pollutants and to propose solutions adapted to the needs of society and economic operators.

In 2020, IMT Nord Europe joined the Shanghai world ranking for the theme “Atmospheric Sciences” based on the quantity and quality of its international publications. CERIEE has around ten active patents, demonstrating its ability to promote its research work, particularly to companies.

BRIEF:

Ensuring a high indoor environment quality (IEQ) in non-residential buildings is a requirement to satisfy strong societal and health expectations in the context of climate change and energetic transition. It imposes to reinforce our knowledge on exposom and thermal comfort, meaning that an interdisciplinary approach focused on occupants, and innovative tools to monitor IEQ are expected. Ventilation strategy, interconnected with thermal comfort, exposure to pollutants and energy consumption issues, is crucial for the ecological transition of buildings.

Based on the latest technical breakthroughs regarding full-scale methodologies, the PhD project proposes a new generation of multi-instrumented manikin to account for both thermal comfort and exposure to indoor air pollutants. A 3-year work planning divided into 3 packages will allow the development, validation and implementation in a real scale experimental chamber the multi-instrumented manikin. After a metrological validation, the manikin will be implemented to gain massive data sets, representative of various ventilation and exposure scenarios. Subsequent numerical simulations will enhance the knowledge on the interactions of occupant with indoor environment in terms of air pollution as well as thermal and aeraulic aspects and lead to ventilation strategy recommendation guidelines.

REQUIRED PROFILE :

Skills	Knowledge
The candidate must be able to demonstrate strong oral and written communication skills. Writing of scientific papers and participation in international conferences are expected. The candidate must have didactic and interpersonal skills in order to work in a multicultural professional environment.	Graduate of a Master Degree, with a general engineering profile, the candidate will need to have complementing skills in fluid mechanics and/or electronics and/or automation and/or data management. Knowledge in air quality will be an additional strength.

CONDITIONS :

The job is to be filled as to 1/10/2022 for a period of 36 months (temporary contract).

The candidate will be of European nationality. He/She will have to meet the selection requirements of the French and Romanian doctoral schools mentioned above. (<https://admitere.utcb.ro/admitere-sud/> ; <https://edsmre.univ-lille.fr/rejoindre-led/candidature>)

The salary of the candidate is ensured by a co-financing between the Hauts de France Region and the UTC Bucharest.

INFORMATION AND APPLICATION METHODS :

For any information on the missions, please contact **Marie Verrielle, associate professor at IMT Nord Europe, marie.verrielle@imt-nord-europe.fr** or **Ilinca Nastase, professor at UTCB, ilina.nastase@utcb.ro**

For any administrative information, please contact the Human Resources Department: jobs@imt-nord-europe.fr

To apply, please connect to our recruitment platform via the following link:

DEADLINE DATE FOR SUBMISSIONS : 20/05/2022