IMT Lille Douai
École Mines-Télécom
IMT-Université de Lille

ACADEMIC POSITION AT INSTITUT MINES-TELECOM

LECTURER / ASSISTANT-PROFESSOR

DISCIPLINE : SYNTHESIS OF MATERIALS FOR THE DESIGN OF AIR QUALITY SENSORS

AFFILIATION : Ecole Nationale Supérieure Mines-Télécom Lille Douai (IMT Nord Europe)

Created by the merger of Mines Douai and Telecom Lille on January 1st, 2017, IMT Nord Europe is one of the largest graduate schools of engineering, north of Paris. It aims at training engineers and scientists of the future, with both industrial expertise and strong skills in digital technologies. Strategically located at the crossroad of Europe, one hour from Paris, one hour and a half from London and thirty minutes from Brussels, IMT Lille Douai intends to become a major player in industrial, digital and environmental transformations of the 21st century. Therefore, our school is building bridges between education, research, engineering and digital science.

Public establishment belonging to IMT (Institut Mines-Télécom), placed under the supervision of the Ministry of Economy, Finance and Recovery, 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.

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 Systems
- Energy and Environment
- Materials and Processes

IMT Nord Europe aims at strengthening its Energy and Environment Centre research both in education and training but also at developing cross-cutting research activities with the other Innovation and Research Centers (CERI) of our school. Within CERI EE, the "Atmospheric Sciences and Environmental Engineering" (SAGE) research team includes 19 teacher-researchers, 10 technicians and engineers. The central themes of SAGE are aimed at a better understanding of the physicochemical processes of generation and transformation of gaseous and particulate pollutants and study of their human and environmental impact.

IMT Nord Europe wishes to strengthen SAGE's skills in the field of synthesis/formulation and shaping of materials for the design of air quality sensors.

The selection committee will pay specific attention to cross-cutting proposals allowing the connection between the different Centres. For more information, see: https://imt-nord-europe.fr/en/

The required missions of the successful lecturer / assistant professor position candidate are described below.

MISSIONS:

Under the guidance of the Head of Energy and Environment Centre, the successful candidate will actively contribute to the teaching and research efforts of the Centre. The teaching missions are centered on the CERI EE's speciality field of Energy and Environment as well as on the various training courses offered at IMT Nord Europe. The research activities are linked to those of the SAGE team, i.e. those carried out with the aim of gaining a better understanding of the atmospheric processes at play in certain environments and proposing effective solutions for improving air quality. The applications concern the fields of air pollutant sensors, their design and their use in the various environments in which they are deployed.

The candidate will be integrated into a multidisciplinary team with skills in atmospheric physics and chemistry, electronics, reactivity and polymeric materials physics.

Teaching Missions and responsibilities

- Participate in the teaching of engineering courses (lectures, tutorials, practical work, etc.) in his/her field of specialization in general physical chemistry and/or process engineering, but also contribute to core and specialized courses (International Masters and Specialized Masters in particular, some courses may be given in English,
- Develop and participate in the development of future innovative training methods/techniques (MOOC, inverted classroom, etc.),
- participate in pedagogical supervision (projects, internships, competition juries). Experience in monitoring internships would be very much appreciated.
- Take responsibility for piloting UVs or any other training coordination mission offered at IMT Nord Europe.

Research and technology-transfer Missions

- Initiate and conduct research projects related to the synthesis/formulation of materials (more specifically, polymers and composites) and the design of sensors in partnership with the economic world and other national or international research laboratories,
- Develop innovative methods of shaping, structuring and functionalizing these materials for the design of sensors dedicated to gases and particles,
- Work, in collaboration with the technical team and the researchers, a technological watch allowing to have the most advanced scientific equipment, materials and software in relation with the theme of the position,
- Make the most of the resources and technical skills existing within the research team for the detection of gaseous or particulate pollutants present in trace amounts in the various atmospheres and specific gas matrices (agri-food, exhaled air, etc.)
- Initiate cross-cutting research activities to build bridges with other IMT Nord Europe innovation and research centers and remain in synch with the areas of excellence of our school and of the Institut Mines-Télécom.
- Contribute to training through research by supervising doctoral and post-doctoral students,
- Contribute to the definition of the necessary resources,
- Be the scientific referent in synthesis/functionalisation/formulation and material deposition techniques (more specifically, polymers or organic/inorganic composites) for the design of sensors dedicated to air, to conduct test or measurement campaigns in this field,
- Prepare the French diploma Accreditation to Supervise Research (“Habilitation à Diriger des Recherches (HDR)”in French).
- implement contractual research and incentive actions and facilitate knowledge transfer in partnership with economic actors.
- promote the department’s activities and ensure its thematic development while enhancing the links with our research and innovation centers.
- participate to the activities of regional, national and international scientific groups, and organize scientific events.
- produce high quality scientific outputs : peer-review papers, patents, etc.

REQUIRED PROFILE :

The successful candidate must have strong scientific background and technical skills, allowing her/him to carry out the aforementioned missions.

She/He should :

- have solid scientific and technological background and significant experience in materials synthesis/formulation and shaping (especially polymers and composites). Knowledge of ink formulation for various printing processes, micro/nanostructuring, organic electronics, would be appreciated. Experience abroad in this field is highly recommended.
- have very good communication and teamwork skills.
- strong teaching experience is mandatory.
- have a good command of English (oral and written)and show negotiation and communication skills, to:
    - demonstrate a marked integration into the international community.
    - justify linguistic and cultural abilities to develop international training and research projects.
    - deliver online internet courses (MOOCS in French and English).
- Be available to participate in working groups, exchanges and national and international events (conferences, congresses, etc.).

The candidate must hold a PhD degree in the field of chemistry or materials engineering. This position is open to a candidate interested in teaching and research oriented in the field of physical chemistry of materials and their application to sensors. Work experience of post-doctoral research and of project management will be highly appreciated and substantial record of research output in high quality outlets, will be highly desirable. The position corresponds rather to a qualification in section CNU 33 or 28. The candidate should show cultural awareness and an aptitude for multi-disciplinary projects and show an interest in applying his/her research to air quality issues.

The administrative residence is located in Douai but teaching delivering will be done in both main locations.

GENERAL INFORMATION :

The required document must include the following documents :

- A CV specifying your activities in teaching, research (including a list of publications and conference presentations), administration and other collective responsibilities as well as the names and contact details of two referees, who will be contacted separately,
- Copies of acquired degrees and diplomas,
- A letter of motivation,
- A summary document (maximum 4 pages) of your qualifications, work and experience,
- The list of references of your publications,
- Your identity document,
- Any other document you consider useful.

Date of opening of the applications : 18/03/2022

Deadline date for submissions : 06/05/2022

Eligibility Conditions : European Nationality Holders (European Union) at the candidature submission date and possessed of a PhD degree.

FOR MORE INFORMATION ABOUT THE POSITION AND MISSIONS, PLEASE CONTACT :

POSITION : **Patrice CODDEVILLE**, Professor at Institut Mines Télécom, patrice.coddeville@imt-nord-europe.fr

MISSIONS : **Nathalie REDON**, Assistant Professor at Institut Mines Télécom, nathalie.redon@imt-nord-europe.fr

Please click on this link to get all details regarding the application to this position :
https://institutminestelecom.recruitee.com/o/concours-maitre-assistantemaitre-assistant-synthese-de-materiaux-pour-la-conception-de-capteurs-environnementaux-a-imt-nord-europe