

**ACADEMIC POSITION AT INSTITUT MINES-TELECOM - IMT LILLE DOUAI**  
**ASSISTANT-PROFESSOR IN POLYMER PHYSICS APPLIED TO PLASTICS PROCESSING**

**DISCIPLINE : POLYMER PHYSICS APPLIED TO PLASTICS PROCESSING**

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

IMT Lille Douai represents one of the largest French engineering schools in the north of France. The **Mines-Telecom Institute** (IMT) includes 11 engineering schools with a total of 13400 students (including 1500 PhD students), and a research contract turnover of 100M€. For more information, see : [www.imt-lille-douai.fr](http://www.imt-lille-douai.fr)

IMT Lille Douai aims at appointing a new faculty member to strengthen its Polymers and Composites Technology & Mechanical Engineering department (TPCIM, <http://tpcim.mines-douai.fr>). At this department located in Douai, France, about 70 staffs are performing research and teaching activities in the fields of (i) manufacturing processes and characterization of polymers and composites from lab scale specimens to industrial scale products as well as of (ii) reliability and durability of mechanical structures.

The missions required by the successful assistant-professor candidate are:

**MISSIONS :**

Under the guidance and responsibility of the Director of the Polymers and Composites Technology & Mechanical Engineering department, the successful candidate should conduct the following research and teaching missions/activities:

• **Teaching Missions and responsibilities:**

- Participate in the teaching activities in his/her expertise area. Some lectures may be given in English. In particular, he/she will be in charge of coursework in polymer physics and chemistry applied to optimization of plastics processing and manufacturing in the frame of the polymers and composites technology graduate programme supported by the French Federation of Plastics & Composites Processing Industry and labelled by the three competitiveness clusters IAR (bio-based materials), MATIKEM (materials, chemistry, green chemistry) and i-Trans (mass transportation). He/she will also have to introduce new coursework on disruptive manufacturing technologies (polymer additive manufacturing, plasronics).
- Implement innovative educational methods to replace or complement classroom lectures.
- Develop and participate in the development of future innovative teaching methods/techniques,

• **Research activities and the transfer of technology :**

- initiate and carry out research projects in the field of (i) advanced characterization of polymer structure induced by manufacturing/moulding processes, and (ii) polymer additive manufacturing : definition of research topics corresponding to industrial needs and based on multiannual contracts; management of research programs and coordination of project groups; supervision of master/PhD students and post-docs. In particular, it will be necessary to broaden the knowledge of structure/processing relationship in line with previous research work developed by TPCIM department, and to contribute to study the physical mechanisms controlling the microstructure and the usage (mechanical, dimensional) properties of manufactured parts (3D-printed by additive manufacturing in particular).
- manage the physical-chemistry laboratory (set up of user training procedures, management of equipment maintenance and use, inventory management of consumables),
- Publish her/his research work: publications in peer review journal, patents, and conferences
- Develop research and technology transfer actions with industrial partners,
- Develop and help in developing the Department's research themes,
- Participate in the activities of regional and/or international scientific groups, and organize scientific events,
- Prepare the French diploma "Habilitation à Diriger des Recherches (HDR)"

**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 :

- be possessed of solid scientific and technical competencies and of significant experience in:
  - characterization of polymer structure (XRD, electron and optical microscopy, spectroscopy), thermal analysis (TGA, DSC, flash DSC), and dynamic mechanical analysis,
  - elaboration and processing of polymers (first and foremost extrusion, compounding, injection-moulding)
  - additive manufacturing based on melt polymer deposition (in particular, FDM and Freeformer technologies), and CAD/CAE and associated software tools,

in order to be immediately operationally to contribute to the on-going R&D projects of TPCIM department on characterization of the constraint amorphous phase induced by processing and crystallization in processing-representative conditions, and on additive manufacturing of large scale plastics and composites parts and components (LASCALA dedicated platform).

- very good communication and teamwork skills,
- a taste for teaching with real teaching abilities,

- a good level of the English language and French language (oral and written), in order 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),

This position is open to a candidate who is interested in the teaching and research oriented towards industrial applications. The candidate should possess a PhD degree in characterization of structure and physical properties of polymers, and have gained a strong operational expertise in additive manufacturing processes of polymers. Work experience of post-doctoral research and of project management is highly appreciated. The candidate should own open mind with the aptitude for multi-disciplinary projects.

#### **GENERAL INFORMATION :**

The required document and for applying for this position can be obtained by contacting :

Sandra ANDRZEJEWSKI (Tel : +33 3.27.71.25.36 – sandra.andrzejewski@imt-lille-douai.fr ) at the :  
Ecole Nationale Supérieure Mines-Télécom Lille Douai (IMT Lille Douai) - Direction des Ressources Humaines  
Site de Douai - 941, rue Charles Bourseul -CS 10838 - 59508 DOUAI Cedex - France

Deadline date for submissions : 30 April 2018.

Eligibility Conditions : European Nationality Holders (European Union) at the candidature submission date.

#### **FOR MORE INFORMATION ABOUT THE MISSION, CONTACT :**

Prof. Dr. Patricia KRAWCZAK - Director of the Polymers and Composites Technology & Mechanical Engineering Department  
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