Interreg France-Wallonie-Vlaanderen UNION EUROPÉENNE EUROPESE UNIE

GoToS3
Elasto-Plast

Université de Lille 1 SCIENCES ET TECHNOLOGIES

POSTDOC POSITION: Synthesis of microstructure controlled thermoplastic elastomers

Job Description

Thermoplastic elastomers are materials that have mechanical properties similar to elastomers, together with the processability of conventional thermoplastics. Their microstructure renders them indeed soluble and meltable, in contrast to classical rubbers. They are notably used when conventional thermoplastic does not match the objectives, or as additives in order to increase impact resistance of classical thermoplastics.

The Interreg ELASTOPLAST project aims to propose to the euroregional plastics processing industry the use of thermoplastic elastomers for the design of innovative materials. The consortium is composed of Centexbel (VKC, Courtrai, Belgium), Materia Nova (Mons, Belgium), the Ecole des Mines de Douai (France), the universities of Leuven (KUL, Courtrai, Belgium), of Reims-Champagne-Ardennes (IFTS, Charleville-Mézières, France) and of Lille 1 (France), the Plastiwin Cluster (Liège, Belgium) as well as the competitiveness poles Up-tex and Matikem (Lille area) and Materiala (Charleville-Mézières).

The successful candidate will be in charge of the conception and synthesis of second generation thermoplastic elastomers. Recent polymerization methodologies enable indeed to finely tune the microstructure of this kind of materials.[1] The work will start by the conception and development of catalytic systems able to reach new microstructures, notably polar ones. The synthesis will take place at the Unity of Catalysis and Solid State Chemistry (UCCS), while the properties, structure and morphology will be studied in close collaboration with researchers of the Unity of Materials and Transformation (UMET). Potential applications and processability will be studied in collaboration with the other partners of the project.

Profile of the candidate

Suitable candidates should have a PhD in chemistry with a solid background in polymerization and be familiar with experimental work under controlled atmosphere (glove box, vacuum line, Schlenk techniques).

Starting date: March / April 2017. Duration : 18 months, renewable once.

How to candidate : Send you resume, motivation letter with the name of two references to :
Prof. Philippe ZINCK – philippe.zinck@univ-lille1.fr

[1] D.J. Arriola, E.M. Carnahan, P.D. Hustad, R.L. Kuhlman, T.T. Wenzel, Catalytic Production of Olefin Block Copolymers via Chain Shuttling Polymerization, *Science*, 2006, 312, 714–719; A. Valente, G. Stoclet, F. Bonnet, A. Mortreux, M. Visseaux, P. Zinck, Isoprene-Styrene Chain Shuttling Copolymerization Mediated by a Lanthanide Half-Sandwich Complex and a Lanthanidocene: Straightforward Access to a New Type of Thermoplastic Elastomers, *Angew. Chem.*, 2014, 53, 4638–4641; P. Zinck, Unexpected reactivities in chain shuttling copolymerizations, *Polym. Int.*, 2016,65, 11-15.