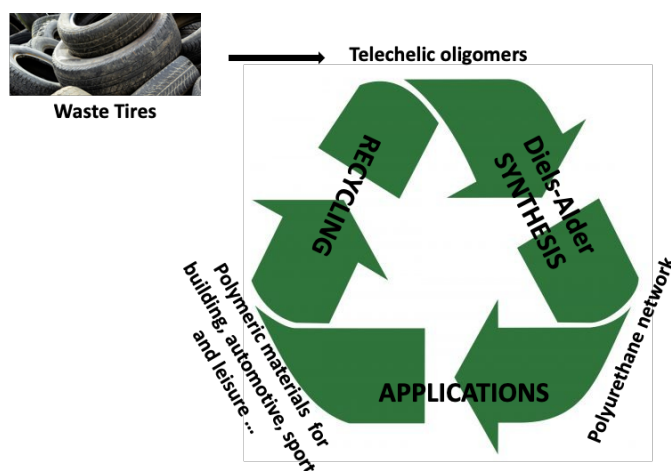


DOCTORAL POSITION : Recycled Polyurethane Cross-Linked Architectures based on Waste Tires and Diels-Alder reaction .

SUPERVISORS: I. Dez (LCMT – UMR 6507) and I. Chataigner (COBRA – UMR 6014)



Context :

Due to the large production of polymers, the chemical recycling of polymer wastes, which would offer a sustainable polymer reusing technology, is of major importance. Polyurethanes (PUs) are a wide family of polymers which are used in a broad range of sectors, from adhesive coatings, to automotive and construction industries. Unfortunately, the current practices in the generation and disposal of PU polymers are largely unsustainable.

The aim of this project is to develop PU in a sustainable way, through the involvement of a Diels-Alder/retro-Diels-Alder cycle and by combining two approaches:

- The first one consists in synthesizing PU networks from elastomer wastes such as tires wastes. Functionalizations of tires wastes through metathesis reactions is envisaged in this context;
- The second aims at designing reversible cross-linked PU networks using the thermally reversible DA reaction, with a particular interest in studying the impact of the nature of the adducts and the influence of the crosslink density on the thermomechanical properties of the networks and their recyclability.



Laboratory :

This research project will be carried out in the polymer group of LCMT. The « Laboratoire de chimie Moléculaire et Thioorganique » (LCMT, Caen) is a part of the « Institut Normand de Chimie Moléculaire, Médicinale et Macromoléculaire » (INC3M Federation). With more than 200 researchers, INC3M meets the requirements for a high quality level of research in the fields of organic synthesis, macromolecules, and medicinal chemistry. LCMT is also a part of two laboratories of excellence : **Labex Synorg** et **Labex EMC³** and of the Carnot Institute **Innovation Chimie Carnot (I2C)**. LCMT is a major player in the field of the molecular and macromolecular chemistry. It participates in national (ANR) and European projects (INTERREG IV, COST). In addition, it has developed various long-term public-private partnerships with chemical industries and research institutions in France and abroad.

Candidate profile :

Applicants should have a strong knowledge of synthetic organic chemistry with a master degree (or equivalent) in organic chemistry. An inclination for polymer chemistry and materials are required. He/She will be rigorous, motivated, hard-worker, autonomous and he/she will have a very good ability to work within team and a very good ability to communicate. Strong oral and written communication skills in English, and French (for French speaking candidates) are requested.

Type of funding :

Normandie Region funding 3 years position; salary range at starting: 1750 € monthly gross.

HOW TO PUT FORWARD MY CANDIDATURE (before 1st JUNE 2021)

Please, send your examination marks, your covering letter, CV with references by mail to: isabelle.dez@ensicaen.fr and isabelle.chataigner@univ-rouen.fr



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