

## Post-doctoral position (18 months) Macromolecular Engineering and Architectures Team of ICGM

**Subject:** «Photolatent ring-opening polymerization in bulk and in aqueous dispersed media»

**Context:** In the frame of the ANR project entitled PHOTON DROP, involving three academic partners (ICGM, IS2M and LCPO) we recently developed photobase generators able to release organic catalysts under UV irradiation.<sup>1</sup> Some of them were successfully employed to trigger and catalyze the ring-opening polymerization (ROP) of cyclic esters and carbonates under UV irradiation and in solution.

**Objectives:** Based on previous results obtained in the laboratory, the work will focus on employing the photobase generators to synthesize biodegradable cross-linked polymer coatings by UV-triggered ROP of cyclic esters and/or carbonates. Obtained films will be characterized by conventional polymer characterization techniques (e.g. DMA). In a second part of the project, the photobase generators will be also employed to trigger the ROP of cyclic esters in aqueous dispersed media (miniemulsion polymerization). Stability of the miniemulsion, polymerization kinetics, final particles size and physico-chemical properties of the final polymer will be determined by several techniques (DLS, SEM, NMR, SEC, LC-MS).

### **Knowledge and skills:**

Applicants should have a very strong background in polymer synthesis. Good knowledge of photopolymerization or/and polymerizations in aqueous dispersed media will be a real plus. Excellent communication skills, autonomy and interest in all aspects of polymer field are required. Good skills for collaborative work are also sought.

### **Contact:**

To apply and for further information, send your detailed CV + cover letter (recommendation letters are welcome) to Dr. Julien Pinaud ([julien.pinaud@umontpellier.fr](mailto:julien.pinaud@umontpellier.fr)) and Dr. Patrick Lacroix-Desmazes ([patrick.lacroix-desmazes@enscm.fr](mailto:patrick.lacroix-desmazes@enscm.fr)).

Final date for application: March 15<sup>th</sup> 2018. Work in the laboratory will start ideally on April 1<sup>st</sup> 2018.

### **References:**

[1] **In Situ Generated Ruthenium-Arene Catalyst for Photoactivated Ring-Opening Metathesis Polymerization through Photolatent N-Heterocyclic Carbene Ligand** Julien Pinaud, Thi Kim Hoang Trinh, David Sauvanier, Emeline Placet, Sriprapai Songsee, Patrick Lacroix-Desmazes, Jean-Michel Becht, Bassam Tarablsi, Jacques Lalevée, Loïc Pichavant, Valérie Héroguez, Abraham Chemtob *Chem. A Eur. J.*, **2018**, 24 (2), 337-341.