Postdoctoral position (12 months)

Physical chemical characterization of light responsive hydrogels

Response of biological tissues to mechanical stress is of crucial importance to understand the onset and progression of various pathologies such as fibrosis and ischemia. In this context, the GELLIGHT project aims at developing biocompatible hydrogels, the stiffness of which can be reversibly tuned by light and which will be used as active sample holders for photonic microscopy of 3D-cultured cardiac cells. Gellight is a multidisciplinary project joining together 4 academic teams working in collaboration with a French Company (https://gellight.cnrs.fr/).

The recruited post-doctoral fellow will characterize the physical chemical properties and light-responsiveness of hydrogels synthesized by our partner from Toulouse. These hydrogels exhibit double cross-linking combining covalent and light-sensitive reversible cross-links. The structure of the network will be studied by light scattering (LS). The mechanical properties will be assessed by rheometry. The influence of light which allows cross-linking or uncross-linking depending on the wavelength will be evaluated *in situ* by both techniques.

Laboratory:

Institut des Molécules et Matériaux du Mans (UMR CNRS 6283) – Le Mans University (France)

Supervision/contact: Dr. Erwan NICOL

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Salary: ~ 2220€ net / month

Funding : French Research National Agency ANR; beginning of the contract: January – February 2021

Expected profile: physical chemistry of polymers, possibly gels. A taste for interdisciplinary topics is essential.

Reference: “Rational Hydrogel Formulation Leads to Reversible and Enhanced Photocontrolled Rigidity” J. Royes-Mir, C. Coudret, C. Roux, F. Benoit-Marquié, C. Cazalès, C. Séverac, C. Lorenzo, A.-F. Mingotaud, *ChemPhotoChem* **1** (2017) 311-316.