

Project proposal for 2015

The Sensorlab and LPPI have started a joined collaboration in 2013 on the development of PPDP – IPNs networks and their application for actuation testing in the presence of volatile organic compounds (VOC) in the gas phase. The main problems with PPDP-IPNs formation was related to solubility of the polymer. By adjusting the polymer synthesis conditions and solvents we have recently chemically synthesised a PPDP polymer with greatly improved solubility as well as conductivity.

From this collaboration, a co-tutelle thesis has recently started. The research will be conducted by a PhD student (Meryck Ward) who will spend 18 first months at UWC developing the chemically synthesised metal nanoparticles modified PPDP-IPN networks. We will explore the preparation of IPN networks to accommodate the PPDP polymer modified with metal nanoparticles and explore its application as actuators for low level strain sensing. The application for VOC sensing based on laser sensing of actuator deflection will be done at UCP for the remaining 18 months of PhD co-tutelle.

The visit of Prof. Baker will mainly consist in discussion and meetings organization in the frame of the co-supervising of the thesis and plan the future visit of Meryck Ward at the LPPI laboratory for the next year (2016).

By the way Professor P. Baker will give 3 lectures (2h each) for the Master class (Master2 recherche, "chimie fine, polymers et Analyse, option polymères") on the field of electrochemical sensors based on polymer transducers.