Beatriz Meana-Esteban

REPORT

The purpose of my research visit to the Linz Institute of Organic Solar Cells (LIOS), at the Johannes Kepler University Linz in Austria, was to learn the use of infrared spectroelectrochemistry coupled to a glove box for the study of the charging reactions in organic solvents (p- and n-doping) of conducting polymers.

Spectroelectrochemistry can be defined as the combination of electrochemical and spectroscopic techniques. This is a valuable tool for the characterization of the different types of charge carriers which are formed during the redox reactions of conducting polymers.

Furthermore, organic solvents should be used as dry as possible if a large potential window is required and because water might also affect the doping reactions. The latter statement is of particular importance when studying the n-doping reactions (reduction) of conducting polymers.

In order to avoid the interference of oxygen and water in the experiments, a glove box coupled to the spectroelectrochemistry instrument was used for the investigation of the redox reactions in organic solvents of different conducting polymers. Thus, during the *in situ* spectroelectrochemical measurements, the different organic solutions were pumping in the spectroelectrochemical cell throw a flow system from the glove box. From the experimental results it can be concluded that the use of a glove box coupled to a spectroelectrochemistry instrument is a powerful and excellent method and improve significantly the quality of the results compared to the those obtained without a glove box.

In January 2008, I will start working as a researcher for 18 months at the Organic Solar Cells (LIOS), at the Johannes Kepler University Linz in Austria. During this period I will be using *in situ* spectroelectrochemical techniques coupled to a glove box to investigate the redox reactions of different conducting polymers. Thus, the research training I have had during my short visit at LIOS (23.09.2007-28.09.2007) will be of great help in the near future.