Report on the research visit of M.Sc. Valentina Bonometti

within the framework of the

'Nanotechnology, Biomaterials and Alternative Energy Source for ERA integration'

(NOBLE SSE) project

M.Sc. Valentina Bonometti from the group of Prof. Patrizia R. Mussini of the Department of Chemistry of the Universita' degli Studi di Milano (Italy) conducted a scientific research during her visit in the Laboratory of Molecular Films headed by Prof. Wlodzimierz Kutner in the period of June 11 through July 9, 2012.

M.Sc. V. Bonometti investigated deposition by potentiodynamic electropolymerization of racemic mixtures of three new chiral oligothiophene monomers synthesized in Milan in collaboration with the group of Prof. F. Sannicoló of the same University. All three new monomers undergo electrochemical polymerization forming thin conducting films. For the characterization, the films were deposited on the Au-coated quartz crystals, Au-coated glass
slides, and the ITO conducting glass. The electrochemical properties of the deposited polymer thin films were fully characterized using cyclic voltammetry as well as simultaneous piezomicrogravimetry and cyclic voltammetry. Moreover, the films were spectrally characterized by UV-vis, PM-IRRAS and Raman (in collaboration with Dr. Agnieszka Michota-Kamińska, Department IX) spectroscopy. Finally, the morphology and thickness of these films were determined by AFM. M.Sc. V.Bonometti successfully deposited thin transparent polymer films by electropolymerization of enantiomers of oligothiophene T6 on the ITO electrodes using modified conditions of electropolymerization. The circular dichroism (CD) spectra of the deposited polymer film, recorded in collaboration with Dr. Patrycja Kowalska (Department IX), indicated that the T6 chirality was preserved after electropolymerization.