

## **Aktion Österreich-Tschechien, Semester- und Jahresstipendien**

### **SCHOLARSHIP REPORT**

Name: **Petr Stloukal**

Home university: **Tomas Bata University in Zlin**

Host university: **Montanuniversität Leoben**

Host institution : **Department Polymer Engineering and Science**

Date of stay: **2.4 - 30.4.2012**

My one month lasting short-term research scholarships at Montanuniversität in Leoben started at the 2nd of April 2010 and finished at the 30th of April. My research work, which I carried out at Department Polymer Engineering and Science under Dr. Milan Kracalik, was first part of AKTION project number 63p24 - Development of effective technology for production of biodegradable polymer nanocomposite films with advanced properties. This project aims to develop an effective technology for production of biodegradable polymer nanocomposite films with advanced properties such as high toughness, extensibility and transparency and low permeability.

At the beginning of my stay, I studied in detail the literature relating to the preparation and characterization of polymer/nanofiller mixtures and discussed this issue with Dr. Kracalik to finalize our research plan. Then I was instructed closely on the use and functions of laboratories instruments and measurement techniques which was necessary for my next research work. The works in laboratories I started with preparation of 21 samples nanocomposites and blends of biodegradable polymer poly(lactic acid) with the help of twin screw extruder. The samples were divided into three groups according to type and content of fillers. Subsequently, I measured the flow properties and characteristics with the use of a rotational rheometer, and carried out the melt tensile tests for all samples. During the sample preparation and measurement of their properties I discussed course of preparation and obtained results with Dr. Kracalik, which along with the consistent study of research literatures concerning our project, led to better understanding of solving problems and improving of the measurement procedures, and thus, to achieve the best possible results.

The prepared samples will be further characterized and finally this research effort will result in the publications, which will be published in respected international journals. Whole stay, which was realized within short-term research scholarships, enrich undoubtedly my existing

knowledge and experience in the area of macromolecular technology especially regarding preparation and optimization of polymer/nanofiller mixtures as well as their characterization, and hence I assess this stay very positively.

With regard to the organization matters and social life, I had not any problem with arrangement of essential affairs such as an accommodation or communication in English language with people in local institutions. The student dormitory where I stayed, provide high comfort at an affordable price and moreover it was located 50 meters from laboratories. During my short stay I managed to meet with lots of interesting people, who showed me the beauty of the town and its social life and with whom I still remain in contact.