

Having spent the previous summer as an Erasmus+ Trainee at Friedrich-Alexander University in Erlangen, Germany, I was very much interested in furthering my scientific studies by following an internship abroad. Switzerland is on the forefront of cutting edge scientific research, discoveries and advancement and this experience was an excellent opportunity to enrich my studies and a great asset for my future career prospects as well as for my wholesome development. Moreover it was a wonderful occasion to further my knowledge and understanding of Swiss culture which I had experienced a few times and to which I had become endeared.

It was an honour to kick-start my career at a world-renowned research institute as the Paul Scherrer Institut. The work opportunity being offered was of particular interest to me as it is very compatible with my research interests in green / environmentally friendly technology and products. I worked on three projects in the Laboratory for Bioenergy and Catalysis.

1st Project: The synthesis of mixed metal oxides via an amorphous citrate method was undertaken using microbalances, rotation evaporators and calcination furnaces. Microstructural characterization was done using temperature programmed reduction (TPR) and X-ray diffraction (XRD). I also attended scanning electron microscopy (SEM) sessions for material morphology characterization.

2nd Project: I tested the catalytic activity of mixed metal oxides towards the water gas shift reaction at high temperatures relevant for solid oxide fuel cell anode materials, both before and after sulfur poisoning. I prepared catalytic plug flow reactors and used mass spectrometers (MS) and lab view controlled mass flow controllers for gas dosage. I then evaluated the catalytic data provided by the MS and analysed catalytic conversions.

3rd Project: I synthesized a series of Cu nanoparticles supported on alumina, which I then characterized by XRD and transmission electron microscopy (TEM). I tested the conversion and selectivity of metallic nanoparticles (Cu, Ru, Pd) supported on alumina (Al_2O_3) for the liquid phase hydrogenation of furfural as a function of reaction temperature, in a plug flow reactor. The performance of the catalyst was assessed using gas chromatography (GC). I optimized the separation method and performed a calibration for the desired reactant and products.

This experience has strengthened my motivation, enthusiasm and resolve in furthering my scientific studies. I also had the opportunity to improve my German, French and Italian thanks to the people I worked with as well as friends I made outside of work, especially at the guesthouse I lived in. Moreover, I could not have

asked for friendlier colleagues, who made me feel welcome at work and were always ready to help. We had lunch together everyday, which made my time at work even more enjoyable and made it really hard for me to say goodbye as the 12 weeks flew by so fast.

IAESTE Switzerland organize weekly meetings in Zurich, normally held every Thursday which is a great opportunity to meet other IAESTE trainees as well as the IAESTE local committee. They also organize weekend trips to Neuchatel, Luzern, Bern, Lausanne, Jura, Basel, Zermatt, Oktoberfest, hiking trips, Wine trail weekend, etc. Therefore, weekends were always spent visiting the numerous scenic lakes, mountains and cities around Switzerland.

I was also lucky to be there for 'Badenfahrt', which is a multi-day public festival held in Baden (just 10 km away from Villigen) every 10 years and is considered one of the largest festivals in Switzerland with various bars and stages as well as food stands. Villigen is just 35 km away from Zurich, which is the place to go during the weekend for the best bars and clubs.

I would like to thank IAESTE Malta and IAESTE Switzerland for the amazing opportunity and unforgettable experience and I recommend it to anyone who has the opportunity. I would also like to thank Prof Oliver Kröcher and his group at the Bioenergy and Catalysis Laboratory, especially my supervisor Dr Davide Ferri and my tutors Patrick Steiger and Thibault Fovanna.