

Interview with Marie Rochoux
PhD student



Where do you come from and what has your training been so far?

I am a French PhD student. After high school, I have done Preparatory Classes in Strasbourg (France), 2 years of full-time high education in Chemistry, Physics and Math, in preparation for competitive entry into the high-level schools of science and engineering. I was accepted into the engineering school in Lyon, France at CPE (Chemistry Physics and Electronics). During these studies, I completed two internships in industry - 1 month in Eli Lilly, in Fegersheim (France), 1 year in Akzonobel in Felling (UK) - and one in research lab, IRCE, Lyon (6 months). I finally received my engineering degree in November 2011 with a major in chemical process engineering. I started my PhD at IRCE Lyon in September 2011.

How did you meet the David Farrusseng's team?

I wanted to work in a lab where I could study catalysis and process engineering. A student of my engineering school advised me to look at David Farrusseng's team job proposal. I found a proposal (now my PhD project) that was very attractive and matched my objectives and interests.

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What is the topic of your PhD and can you tell us about the objectives you have to reach?

I study oxygen transport kinetics through mixed ionic and electronic membranes (MIEC) in order to use them in oxygen separation and catalytic processing.

Despite decades of research efforts, the prediction of oxygen flow in membrane (MIEC) is still not achievable. I am developing a new approach which relies on the determination of rate constants using isotope exchange measurements.

It is a very challenging topic and I really enjoy working on it.

What did you learn your participation to national/international events during your PhD?

I learned how to present scientific data and to valorize it in process applications.

Indeed, in a European project, we always have to present our results in reports, oral presentations and so on. After which, we present these results to other members of the team. They discuss on the results and help us to find new experiments and new tests to run in order to reach our goals. This is very fruitful and motivating.

Do you have some advice to master/engineer students considering taking a PhD?

To do a PhD in a European project such as CARENA project, is a very good way to improve the scientific oral presentation skills and to understand the differences and challenging issues between the academic and the industrial sectors.

I think it is very important to do regular reports during a PhD for two main reasons. It helps to keep a track of all the work which have been achieved. The second point is that these regular reports give a chance for the PhD student to have a global view of the work.

Also working in an European Project with industrial and academic collaborations is really motivating as there are clear aims for the project.

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CAtalytic membrane RE actors based on New mAterials for C1-C4 valorization

CARENA is a large-scale integrating project funded by the EC

What do you expect from this PhD?

I would like to improve my scientific knowledge and my scientific discipline. Improving my scientific knowledge in a specific field (membrane reactor) would help me for my future job to understand each problem in this field and to be able to find an innovative solution. Improving my scientific discipline is very important so it enables me to do quality work, to find relevant results and to be able to analyze it properly.

Working in a European project team helps me to reach these two goals. With all the meetings, I am able to have a global point of view of the subject and working within a team environment to share and discuss results.

What are your plans after completing the PhD?

I would like to keep working in the research field, and in particular in catalytic process engineering. I am open to the possibility of working in either an academic lab or in industry.

Thank you Marie for giving us a glimpse into your brand-new research activities!



CARENA in brief

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