

## **Project: Surface heterogeneity and interfacial transport**

“Enhancing mass transport through catalytic induced surface flow”

*Aura Visan (UT)*



### **Can you do a short presentation about you?**

I am a PhD student in the Soft Matter, Fluidics and Interfaces group. I graduated cum laude the Chemical Engineering master track from University of Twente. I did my Bachelor studies also in Chemical Engineering at the Technical University of Bucharest where I graduated first in my faculty.

### **How is living in another city like Enschede?**

Enschede is a small city compared to what I am used to. Nevertheless, the social scene is pleasant. I enjoy the jam sessions at Tankstation. On the practical side of things, getting around is easy and the lack of music festivals is compensated by a comfortable lifestyle. Doing a PhD doesn't leave me with much free time anyway.

### **Would you advice a friend to come to the Netherlands?**

Definitely, the culture and overall atmosphere is very pleasant. I learned a lot from my friends and colleagues here. I appreciate in particular the high quality education and research.

### **How/why did you finish in Enschede?**

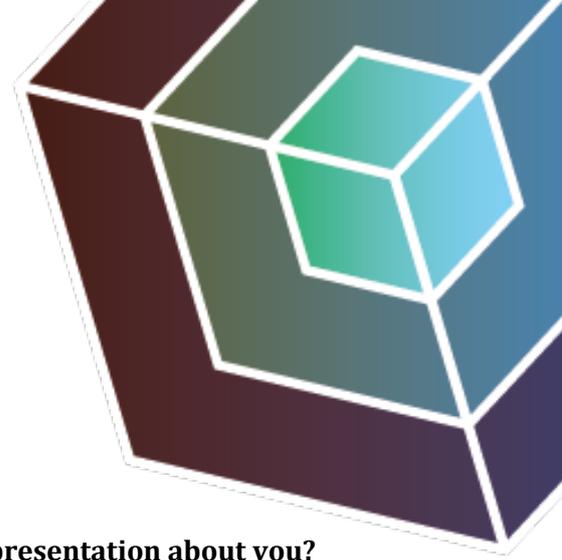
It was by curiosity that I went to a study fair one weekend when I was in my third year of Bachelor which led to an internship here. People got to know me and I was offered a full scholarship for my master studies. I did my master assignment under the supervision of Rob Lammertink and I was lucky enough that he gave me a chance to do my PhD in his research group.

### **How did you become interested in science?**

I've always loved mathematics and later on I was good at chemistry, so Chemical Engineering followed naturally. I didn't consider any other option at the time, it was the only program that I applied for. I was never too pragmatic. I do wonder what would have been if I had a good Physics professor during my undergraduate studies.

### **Did you know right away that you wanted to be a research scientist?**

Not really. I never had a vision for what I wanted to become, but I never stopped enjoying



learning, reading and I never liked easy.

**What do you enjoy the most about your research?**

The novelty of the topic. It was this great of an idea that I had to make it happen. No recipes to follow, no direct source of inspiration, no setup; I had to build everything from scratch.

**What is your biggest motivation?**

It used to be the achievement itself, doing a good job. Now I understand that success has to do a lot with external factors which are out of my control, so I focus more on personal development. I do my best and in the process try to acquire as many skills as I can.

**How do you see yourself fitting in the MCEC project?**

A lot of efforts are made to synthesize new catalytic materials, characterize them thoroughly, develop new methods for mapping their activity in situ, identify the optimum operating parameters and design the reactor that provides the highest degree of mixing and conversion. My project lies somewhere in between the nanoscale characteristic for individual surface reaction events and the large scale reactor. Having a great catalyst that provides a high throughput in an ideally stirred reactor is not enough. We are trying to enhance the interfacial mass transport which is typically limiting due to the low velocity region close to the catalyst.

**If you had a time machine and two beers, with which scientist would you like to meet?**

Boris Derjaguin. For once, it would be nice to know how to pronounce his name. Well, I would have loved to get to know such an ingenious person who could fiddle in the lab, infer only from his vast theoretical knowledge possible phenomena, like it was the case for diffusio-osmosis. And, of course, it would have been interesting to experience the research environment in those times when people were completely dedicated to their work.

**Which is the most memorable "Eureka" moment in your life (not necessarily connected to science)?**

It was my first year of PhD that humbled me and made me realize that personal determination and effort don't always decide the outcome.

**Which scientific term/phenomena you think is the most misused by media?**

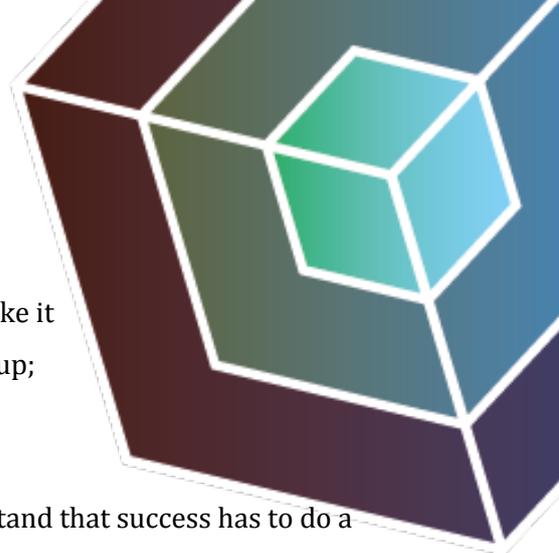
I am not sure which is the most misused term, but I am annoyed by the premeditated misuse driven by marketing interests. So you get products without soap, but with surfactants, without sugar, but with fructose and many other examples.

**What do you like to do in your spare time?**

Dancing is my favorite pastime and in particular Lindy Hop or any jazz related dance. I enjoy reading a lot, not only articles, and travelling like everybody else, I guess.

**Is science the answer to everything?**

Science is way ahead of politics. There is so much knowledge sitting on the shelf. We are still



waiting for a lot of regulations to implement available technologies. Only when the whole society can benefit from these advancements, is science becoming an answer. On a general note, science cannot stop greed or end wars.

**What do you want to do after finishing your PhD?**

I am sure it will depend on the opportunities I'll have at that moment, so I prefer not be very specific about my expectations, but I do want my work to be relevant for society rather than making rich people richer and I will try to stir things in that direction.

