

My NWN Experience in Department of Fluid System Dynamics in Technische Universität Berlin

I am a PhD student in the Department of Energy Technology in Aalborg University. I started my PhD in September 2014 and will finish around September 2017. From the 19th of April to the 29th of July 2016 I visited the Department of Fluid System Dynamics in Technische Universität Berlin with support from the Nordic Water Network.

On the 19th of April 2016 I took a plane in Aalborg bound for Berlin. In Tegel Airport I was welcomed by Markus from the Nordic Water Network and a PhD student from the Department of Fluid System Dynamics. They gave me a lift to the TU guesthouse, where it had been arranged that I could stay for the first month. I was happy not to worry about accommodation during my first days in Berlin and Nordic Water Network was very helpful trying to find accommodation for the last part of my stay.

My PhD project deals with simulation of clogging effects in waste water pumps caused by textile materials such as wet wipes. In that connection I need experimental results to validate the simulations and to identify realistic initial- and boundary conditions for the textiles, since this type of simulation has not previously been made, and the knowledge about the motion of textiles causing clogging is very limited. I chose to visit Technische Universität Berlin to get an opportunity to use the test facilities for waste water pumps located in the Department of Fluid System Dynamics. Additionally, I wanted to learn and get inputs from a research group working with topics related to waste water. The test facilities in the Department of Fluid System Dynamics already enabled visual access to the pumping system with test stands incorporating parts in acrylic glass. I used two of the existing test stands to investigate the motion of textiles near the inlet of both wet- and dry installed pumps. Using these test stands was a great possibility in connection with my PhD, since construction of similar test stands in my home department would not be possible.

Through conferences and meetings I had already met the Department Head Professor Thamsen and several of the PhD students working in the department. This made it very easy for me to settle in as I already had some contacts, and all were very welcoming. On my first day in the university my table was ready in an office where with PhD students working on topics similar to mine. Everyone were ready to help with everything from valuable advice and inputs to my PhD project, to finding accommodation, buying a monthly ticket for the u-bahn and s-bahn, and figuring out the best things for me to experience in Berlin. I felt like a part of the group from the beginning of my stay. The first part of my stay, I used to plan my experiments and to design a new inlet pipe for one of the test stands to increase the quality of visual access to the pipe. All of this with the help of the other PhD students, who were experienced in experimental work. Furthermore, through the Department of Fluid System Dynamics I also got in touch with HTW Berlin, where they have expertise within textiles. I went to visit HTW several times during my stay in Berlin to do measurements on the properties of wet textiles to be able to model textiles in water.

After a month staying in the TU guesthouse I had to move out and find new accommodation. After some difficulties I managed to find a fully furnished apartment through City-wohnen. I signed up on the webpage of City-wohnen and I was offered an apartment very shortly after that. The price was 750 Euro/month which is above the normal price for accommodation in Berlin. But since it was the only place I found and since it was only for two months, I accepted the offer. With the financial support from the Nordic Water Network it was possible, and I was able to cover all my expenses like accommodation, food and transportation.

In my free time I had visits from both friends and family and we explored Berlin together. Among other things we experienced Sunday afternoons in Mauerpark, shopping in Kurfürstendamm, and visiting sights like Brandenburger Tor, the area around Friedrichstraße and Treptower Park. Apart from experiencing the city of Berlin, I have some of my best memories during late afternoons and evenings, having a beer with colleagues after work. This could be in a biergarten nearby, or in the hall with experimental facilities which turned out to be the perfect place for a beer and a talk after working hours.

The experiments I did during my stay in Fluid System Dynamics will be an important part of my PhD. In December 2016 I presented a paper *“Experimental Investigation of the Motion and Shape of Flexible Objects near Pump Inlet”* based on the results of the experiments I did during the summer, in Australasian Fluid Mechanics Conference. Furthermore, an abstract based on the experiments I did during my stay in November has been accepted for ASME’s Fluids Engineering Division Summer Conference 2017.

I already returned to Berlin in November 2016 for 3 weeks to do further experiments. I very was happy to be back, and I would recommend to anyone who has the chance, to go abroad through the Nordic Water Network and explore a new part of the world and experience to be a part of another research environment. I see it as a clear advantage that Nordic Water Network has already established the contact between a group of universities making an exchange to another university in the network easier to accomplish.



Useful links:

City-wohnen: <https://www.city-wohnen.de/>

BVG: <http://www.bvg.de/en/>