

2012

Topics in Water Chemistry and Water Technology

Annual Report of the Chair for Water Chemistry and Water Technology
and the DVGW Research Institute at the Engler-Bunte-Institut

Dear colleagues and friends,

Leaving the Institute of Water Quality Control in Garching and moving to the Engler-Bunte-Institut was indeed not easy. Six people (postdocs, PhD students and professor) arrived at the Karlsruher Institut für Technologie in January this year. We started working on our projects and writing proposals to achieve funding. Furthermore, we faced the challenge of giving lectures and contributing to the practical courses for students. Looking back, it was hard work to find our way into the KIT system, which certainly is different from the one in Garching. Finally, a team formed out of people already working at the Engler-Bunte-Institut and the “new ones” managed to set up new reactors and methods. Meanwhile, the scientific work is on its way and on the next pages you can see a little bit of what we will be doing within the next years.

One main interest in our research is the understanding of fundamental physical, chemical and biochemical processes in aquatic systems. A large number of processes in aquatic systems are driven by the activity of microorganisms at interfaces. Highly efficient reactors can be developed and finally operated in water treatment if we understand these underlying processes. As you will see, the research is done with a bunch of methods and by operation of both lab scale and half scale reactors. On the side of methodology, imaging techniques such as optical coherence tomography (OCT) and magnetic resonance imaging (MRI) play an important role in our research. Especially when it comes to the activity of microorganisms at interfaces, not only the presence of the organisms but also the structure and the organization heavily influence the function delivered by such aggregates.

We are sure that our work can contribute to the wide range of water research done at the KIT. The KIT seems to be the research and teaching institution in Germany where natural science and engineering are the most closely connected. This was my main reason for coming to the KIT. The Chair of Water Chemistry and Water Technology at the Engler-Bunte-Institut can have a key position in the process of merging research from both sides, i.e. natural science and engineering. Technology is a driving force in our country, and the development of new technologies for water treatment and re-use is still of high interest, as Germany is one of the main water technology exporting countries worldwide. On the other hand, water quality in natural aquatic systems is a topic where the number of questions asked is still larger than the number of answers found.

I am sure that the research team at the Engler-Bunte-Institut will continue to contribute to both water quality research and water technology development in the future.

My best wishes

Harald Horn

