



Alumnus Malte Drescher

Alumni Portrait Nr. 01—2017

Heisenberg Professor *Spectroscopy
of Complex Systems*, Department
of Chemistry, University of Konstanz



Malte Drescher

There is an advantage to studying the natural sciences, because “you can postpone the decision of what to do with your degree for some time,” says Malte Drescher, now a Heisenberg professor at the University of Konstanz. “You are not tied to a specific job profile.”

Because he enjoyed it at school, physics was the right subject for him. He received his undergraduate degree from the University of Karlsruhe in 2001 with a final thesis on a topic in solid-state physics. Thereafter, everything fell into place for pursuing an academic career. He completed his PhD work in Karlsruhe, followed by a postdoctoral research position in the Netherlands. It was during this phase that he won an Emmy Noether Grant and began searching for the right place to set up his research group. Konstanz was ideal because it had experimental equipment he could not otherwise have financed through his grant. The successful work of his Emmy Noether junior research group and a Heisenberg Grant finally led to the first Heisenberg Professorship at the University of Konstanz dedicated to the Spectroscopy of Complex Systems. Looking back at his career, Malte Drescher never faced a critical situation. Everything worked out to his benefit, although researchers are still under a great deal of pressure until they finally obtain a permanent position or professorship. It may not be easy convincing your family to move, “but no, there was never really a serious challenge in my path, nothing I ever lost sleep over. I was just lucky.”

Together with his group, Malte Drescher developed a method for determining the structure of macromolecules via distance measurements within cells. They use “spin markers” – basically molecule-sized magnets – that can be attached to interesting macromolecules, making it possible to measure distances on a molecular scale. Because the detection is

sensitive only for the marker, no disturbing background signals are detected, unlike with other available techniques. This method works for proteins in cells, but also for polymers in nanoparticles and small molecules in porous materials. Malte Drescher emphasizes that, “there are no limits to using the method.”

He came to Konstanz when the Zukunftskolleg was in its infancy. He applied to the program and became a Fellow in 2008. Malte Drescher says it was great being part of such an organization, especially because he was new in Konstanz. He fondly remembers the informal atmosphere, guided tours of the town and the feeling of being part of a community of researchers. Apart from the Zukunftskolleg having a tremendous impact on his scientific career, as Malte Drescher points out, three key elements helped him along the way. First, he liked having “official status” within the University. It was very helpful in mentoring PhD students: “I was a member of the Zukunftskolleg and therefore somebody to be trusted with their exams.”

The second thing he valued was the “generous financial support.” If equipment broke down, he could just apply for funds from the Zukunftskolleg. The research process did not slow down, since everything was organized very quickly.

However, the most important element was the opportunity to invite **Senior Fellows**² to Konstanz. Malte Drescher organized a Summer School with Gunnar Jeschke (ETH Zurich) and invited Adelheid Godt (University of Bielefeld), who had helped by developing molecules he needed, and Vinod Subramaniam, a guest professor from the Netherlands. Without the Zukunftskolleg, it would have been difficult or virtually impossible to get all these inspiring personalities to Konstanz.

Just as he had expected, he found the Zukunftskolleg to be a place with an international character that fosters interdisciplinarity. The **Jour Fixe**³, a weekly meeting at which different fellows present their work, is something Malte Drescher describes as “a luxury to indulge in.” Taking the time to get insight into a completely different field, in a different style, with no immediate benefit is something he will always remember very positively: “It helped me to understand the differences between the natural sciences and humanities.”

Looking at the next generation of scientists, Malte Drescher believes the Zukunftskolleg is a unique asset for recruiting young, motivated researchers to Konstanz. He also has some advice: “People stay at the postdoctoral level too long. Two years, preferably abroad, is a wonderful thing, but after that it is essential to work independently and on your own.” Another important factor in taking the next step as a young group leader is to apply for professorships in time. “I applied too late, because I feared that my performance wasn’t good enough for an application. I compared myself to people who were already there, people who were a few years ahead of me.” But candidates should keep in mind that it takes time between the actual application and the appointment, time during which your own research develops and continues. The most important thing to do is to concentrate on visible development, showing “that you can pull loose ends together and are different from your mentors. You have to have an objective, something it all leads up to – something that you didn’t learn from your PhD.”

“You have to have an objective, something it all leads up to.”



Grants, Awards, Honorary Posts

- 2013** **Heisenberg Fellowship**¹
- since 2011** Ombudsman of the “Deutsche Bunsengesellschaft für Physikalische Chemie” [“German Bunsen Society for Physical Chemistry”]
- 2010 – 2015** Member of the Executive Committee of the Research School Chemical Biology, University of Konstanz
- 2008 – 2013** Fellow at the Zukunftskolleg
- 2007** **Emmy Noether Grant**²
- since 2006** Member of the Executive Committee of the Collaborative Research Center 969: “Chemical and Biological Principles of Cellular Proteostasis”
- 2004** Young Scientist Award, International Conference of Science and Technology of Synthetic Metals (ICSM)

Curriculum Vitae

Education

- 2014** Habilitation, Physical Chemistry, Department of Chemistry, University of Konstanz “Elektronenspinresonanz-Spektroskopie zur Aufklärung von Struktur und Dynamik polymorpher Biomakromoleküle in vitro und in cellula” [“EPR spectroscopy for unraveling the structure and dynamics of polymorph biomacromolecules in vitro and in cells”]
- 2005** PhD, Institute of Physics, University of Karlsruhe “Ortsaufgelöste Elektronenspinresonanz” [“Space-resolved electron spin resonance”]
- 2001** Diploma thesis, Institute of Physics, University of Karlsruhe
- 2001 – 1996** Studies of Physics, University of Karlsruhe
- 2002 – 2005** PhD student in the group of Prof. Elmar Dormann, University of Karlsruhe

Scientific career

- since 06.2015** **Heisenberg Professor**¹, “Spektroskopie komplexer Systeme” [“Spectroscopy of Complex Systems”], Physical Chemistry, Department of Chemistry, University of Konstanz
- 01.2008 – 11.2013** Head of **Emmy Noether**² Research Group, Department of Chemistry, University of Konstanz
- 09.2007 – 12.2007** Research Associate, Molecular Physics, Leiden Institute of Physics, University of Leiden, The Netherlands
- 10.2009 – 09.2010** Deputy Professor “Physikalische Chemie I: Struktur und Dynamik der Materie” [“Physical Chemistry I: Structure and Dynamics of Matter”], Department of Chemistry, University of Konstanz
- 02.2014 – 05.2015** **Heisenberg Fellow**³, Department of Chemistry, University of Konstanz
- 09.2006 – 08.2007** DFG-funded Research Fellowship, Molecular Physics, Leiden Institute of Physics, University of Leiden, The Netherlands
- 01.2002 – 08.2006** Research Associate, Institute of Physics, University of Karlsruhe