Zukunftskolleg

Universität Konstanz

Alumnus Thomas Voigtmann

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Professor for Theory of Soft Matter,
Department of Physics, Heinrich Heine University Düsseldorf
(joint appointment with the German Aerospace Center, DLR Köln)

Artwork by
Patrick Tresset

Thomas Voigtmann

Zukunftskolleg

Curriculum Vitae

“To be an amazing scientist, you really have to have the drive, an urge to solve problems!” Thomas Voigtmann, professor of physics at Heinrich Heine University in Düsseldorf and group leader at the Institute of Materials Physics in Space within the German Aerospace Center in Cologne, thinks that enthusiasm and a certain playful instinct are vital in being successful. “Science is not merely a job. Science is a calling.”

Education

2003 PhD, Department of Physics, Technical University of Munich
“Mode Coupling Theory of the Glass Transition in Binary Mixtures”

1999 – 2003 Doctoral researcher under the supervision of Professor Wolfgang Götze, Technical University of Munich

1998 Diploma Thesis, Department of Physics, Technical University of Munich
“Schematic Models of Mode-Coupling Theory with Hopping-Term”

1993 – 1998 Studies in Physics, Technical University of Munich

Scientific Career

since 2014 Professor for Theory of Soft Matter, Department of Physics, Heinrich Heine University Düsseldorf (joint appointment with the German Aerospace Center, DLR Köln)

2011 – 2012 Interim Professor of Experimental Physics, Department of Physics, University of Konstanz

2008 – 2014 Head of Young Investigator Group, Institute of Materials Physics in Space, DLR Köln, and Department of Physics, University of Konstanz

2007 Postdoctoral Researcher, Institute of Materials Physics in Space, German Aerospace Center (DLR), Köln

2005 Postdoctoral Researcher, Sapienza University of Rome, Italy

2003 – 2006 Postdoctoral Researcher, University of Edinburgh, UK

Thomas had many interests when he finished school. He considered studying chemistry or computer science. “I definitely wanted to be in the natural sciences.” By chance he then met a physicist and talked things through with him. “He told me that physics combines a lot of the themes that fascinated me, and that it is quite a universal field.” Thomas subsequently entered the physics programme at the Technical University of Munich, but continued to nose around the other departments and fields. He saw the possibilities for broadening his knowledge in other directions, something he highly recommends for starting a career in academia. Becoming a professor was always a dream, but during his education, there was always the question of whether it was going to work out.

Fortunately it did: Thomas finished his PhD in Munich and continued with postdoctoral positions in Edinburgh and Rome. In 2008 he returned to Germany, founded a Young Investigator Group with funds from the Helmholtz Association and started working at the Institute of Materials Physics in Space in Cologne. Because he needed a collaboration project between his research institute and a university in order to comply with the requirements of the Helmholtz Association, he used his contacts at the University of Konstanz and the Department of Physics, where he had spent some time prior to leaving for Edinburgh. He arrived during the transition phase when the ***Excellence Initiative*** had been concluded and the Zukunftskolleg was evolving. He became a Fellow and says about it: “This institution is truly optimized. It is really structured and simply offers so many prospects.”

With help from the Zukunftskolleg, he was able to finance a PhD position. But Thomas points out, “I never really saw the Zukunftskolleg as a mere sponsor. It was more about the community, which helped me to get in contact with other young researchers, especially from other fields like philosophy, so I could explore other perspectives.”

In his research, Thomas focuses on the theory of soft matter. Although it is a theoretical approach, the systems he and his group investigate are easy to comprehend: Everyday materials like toothpaste, paint and plastics are all soft matter. These materials are not built from single atoms, rather their structure is composed of agglomerates. Such structures exist in micrometre sizes and have certain properties. “One of my favourite examples is paint! Why is it extremely viscous in the can, but then easy to apply on the wall? And why doesn’t it immediately drip down as soon as it is applied?” The reason is that soft matter is prone to nonlinear response. Minor changes in the system – or material – can have far-reaching consequences. A tremendous amount of empirical knowledge of soft matter exists, but Thomas is interested in the theory behind it. “How do materials act under strong external forces? There are basic principles about it and I want to understand and focus my research on them.”

After five years, his Fellowship ended, but Thomas is still at the Institute of Materials Physics in Space. “According to the ‚Jülicher Model‘, group leaders and directors of research institutes have dual appointments, therefore I am also a professor at Heinrich Heine University”, says Thomas. He divides his time between Düsseldorf and Cologne and between lectures and research. “I really like teaching, and yes, it’s a lot of work, but that’s how it’s supposed to be. I really want to enlighten and inspire my students! I think that encouraging enthusiasm for their studies is sometimes more relevant than methods.”

Distinctions, Awards and Honorary Posts

2013 Outstanding Referee, American Physical Society (APS)

2012 Award for excellent teaching “LUKS”, University of Konstanz

2012 Students‘ award for excellent teaching in physics “Löphi 2011”

2009 – 2014 Fellow of the Zukunftskolleg, University of Konstanz

2008 – 2014 Helmholtz-University Young Investigator Fellowship

2005 – 2006 Emmy Noether Fellow, German Research Foundation (DFG)

1993 Award of the Chemical Industry for outstanding high-school performance

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