Andreas Kirschning studied chemistry at the University of Hamburg and at Southampton University (UK). In Hamburg, he joined the group of Prof. Ernst Schaumann and received his PhD in 1989 working in the field of organosilicon chemistry. After a postdoctoral stay at the University of Washington (Seattle, USA) with Prof. Heinz G. Floss, he started his independent research at the Clausthal University of Technology in 1991, where he finished his habilitation in 1996. In 2000 he moved to the Leibniz University Hannover. His research interests cover structure elucidation as well as the semi-, total and mutasynthesis of natural products, biomedical biopolymers, and synthetic technologies (solid-phase assisted synthesis, microreactors and inductive heating).

Research topics:

1. Total synthesis of natural products

The close strategic alliance with the Helmholtz Center of Infectious Diseases (HZI) allow us to carry out first hand research and total synthesis with newly isolated natural products such as thuggacin, elansolide and others, all of which are highly potent antibiotics. In an interdisciplinary environment with biochemists and biomedical research groups for understanding the mode of action we develop analogues for structure-activity relationship studies (SAR) consequently trying to develop those molecules towards clinical applications.

2. Smart materials for regenerative therapy

In collaboration with the medical high school Hannover (MHH) new implant materials are developed for clinical use. These are based on titanium, gold ceramics and polymers and our task is to functionalize these surfaces with drugs such as antibiotics to e.g prevent bacterial biofilm formation on the surface material or infections in the vicinity of the implant. For that we also rely on natural products covered in topic 1.

3. Synthetic technology

For 15 years the group has been involved in the development of microstructured flow devices for the continuous preparation of drugs such as olanzapine in a multistep fashion. Key achievements were the development of porous monolithic materials embedded inside the reactor that are doped with catalysts and the worldwide first application of inductive heating in organic chemists’s laboratories using an external electromagnetic field that allows to carry out high temperature, high pressure reactions with microreactors.
Further reading:

**Topic 1**


**Topic 2**


**Topic 3**