

## Thin Films with a great Impact

Three Companies Are Sharing the Professorship of Thin Film Technology



*Professor Wilhelm Schabel studies finest films in the micrometer and nanometer range. (Photo by: Andrea Fabry)*

**Thin Film Technology is the field of work of Professor Wilhelm Schabel, holder of a shared professorship at the KIT: This shared professorship is the first, in which three enterprises are involved as industry partners: Bayer, BASF, and Roche. Apart from the professorship, the four partners are funding the setup of a chair and of an institute-overlapping thin-film-technology platform. Thin layers with novel functional properties are gaining importance for use as e.g. optical foils, varnishes, sensor materials or semiconducting thin layers for organic electronics.**

The cooperation is designed for a period of five years. Each of the four partners – KIT, Bayer Technology Services, BASF SE, and Roche Diagnostics – contributes a quarter of the funds. The share of the KIT is based on the KIT Excellence Future Concept and partly consists in the supply of infrastructure. Beyond this cooperation, bilateral projects are planned with the individual companies.

The professorship has been established at the KIT Institute of Thermal Process Engineering, and is closely linked with the Institute of Nanotechnology, the Light Technology Institute, and the Institute of

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Mechanical Process Engineering. Schabel works both at the KIT and at the enterprises and in cooperation with the latter. His professorship is one of the so far six shared professorships at the KIT. The basic idea is to give young scientists the opportunity to gain experience in both research and industry at the same time.

Thin Film Technology (TFT) deals with the setup and properties of thin layers and the devices and process technology required for their production. The thickness of the layers varies between a few micrometers and a few nanometers. In such a thin layer, minute amounts of resources already have a great impact and are highly effective. "Products applied as liquid films onto substrates by low-priced so-called roll-to-roll processes will play a "key role", explains Wilhelm Schabel. The interdisciplinary TFT platform established on Campus North of KIT is aimed to rapidly transfer new technologies from research to the production scale.

A particularly promising new market is Organic Electronics with organic photovoltaics. In this field, TFT mainly focuses on polymer solar cells and hybrid solar cells, i.e. on polymer solar cells with inorganic nanoparticles. Other projects cover medical diagnosis test strips, coatings and varnishes as well as functional thin layers and structures for thin-film batteries and optical foils.

In September this year, Professor Schabel will chair the "European Coating Symposium", at which experts from research and industry will discuss new developments in the field of liquid-film coating processes. This biennial symposium will take place for the first time at Karlsruhe and is presently being organized by Schabel and his group.

**The Karlsruhe Institute of Technology (KIT) is the merger of the Forschungszentrum Karlsruhe, member of the Helmholtz Association, and the Universität Karlsruhe. This merger will give rise to an institution of internationally excellent research and teaching in natural and engineering sciences. In total, the KIT has 8000 employees and an annual budget of 700 million Euros. The KIT focuses on the knowledge triangle of research – teaching – innovation.**

**The Karlsruhe institution is a leading European energy research center and plays a visible role in nanosciences worldwide. KIT sets new standards in teaching and promotion of young scientists and attracts top scientists from all over the world. Moreover, KIT is a leading innovation partner of industry.**

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