



Metalloxidpartikel | © Pressefoto BASF SE

## Nanotechnology and New Materials

Nanotechnology can be understood as a synonym for the technological competitiveness of a location or region. Massive public investment in Eastern Germany's research infrastructure after German reunification has created a landscape of highly competitive clusters and regional networks in which nanotechnology provides the impulse for the development of new products and processes.

Particularly noteworthy in this respect is the region of Dresden, with its strong focus on microelectronics and nanoelectronics and its specific competences in the development of organic electronics (OLEDs) for the next generation of screens and lighting systems.

The Leibniz Institute of Polymer Research Dresden is conducting pioneering work in the use of carbon nanotubes (CNTs) in new and extremely strong materials. High-precision thin films with new properties are being developed by the Fraunhofer Institute for Material and Beam Technology (IWS).

Further afield, the Berlin/Brandenburg region is focusing on the continued development of ultra-fast data transfer through the next generation of lasers. Nanomedicine and nanobiotechnology are other technological focal points in the capital city region. Nanotechnology is helping make new and more efficient oncology therapies possible; thanks to better and more efficient drug delivery systems and anti-tumor treatments.

Plasma is a major theme in the Greifswald region along the Baltic Sea coastline. The Leibniz Institute for Plasma Science and Technology (INP Greifswald) is a leading global player in the use of cold plasma technology for surface coating. The interdisciplinary CampusPlasmaMed research association is exploring the use of plasma technologies medically in order to identify novel therapies. Greifswald is leading the way and has formed powerful strategic alliances with other Baltic State regions to jointly foster technology transfer from the research lab to the commercial marketplace.

Photonics is at the center of activity in the optics cluster in the city of Jena (Thuringia) which is home to world-renowned industry actors including Carl Zeiss. The future of nanoanalytics would look very different were it not for the non-destructive testing methods made possible by photonics from Thuringia. This also holds true for the integration of micro- and nano-level integration of sensors and actuators in lithography (e.g. the manufacture of structured and functional surfaces with superior properties).



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