

APPLICATION CENTER FOR OPTICAL METROLOGY AND SURFACE TECHNOLOGIES

The new Fraunhofer IWS Application Center for Optical Metrology and Surface Technologies (AZOM) launched operations in August 2015. The center is located near the West Saxon University of Applied Sciences of Zwickau (WHZ) and forms a bridge between the Fraunhofer IWS and the regional industries in Western Saxony.

Currently the IWS as well as the partner WHZ have numerous industrial customers in Saxony and its bordering regions of Eastern Thuringia and Upper Franconia. The application center will enable both institutions to bundle their research and development services as well as their educational opportunities in the region. The new application center is in the position to substantially contribute to strengthen the economy in the southwest region of Saxony.

The Fraunhofer application center's technical orientation intersects with the needs of the typical industries of the region, these are mechanical, automotive and medical engineering. The competences of the application center complement those of Fraunhofer IWS business fields in the areas of optical metrology, sensorics and surface technologies. The work foci and competences of the new Fraunhofer application center include particularly the following areas:

IMAGE PROCESSING AND OPTICAL PROCESS CONTROL

- industrial process monitoring
- non-destructive characterization of components
- optical imaging methods in medical technology
- high speed imaging of thermal processes
- application specific automation solutions

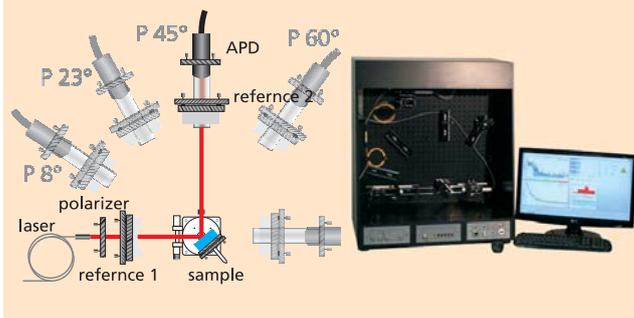
PHOTONIC SYSTEM COMPONENTS, FIBER TECHNOLOGIES AND OPTICAL METROLOGY

- laser beam characterization and stability studies
- nonlinear optics technologies
- development of special light sources
- measurement of human functional parameters
- optic sensor elements for bio micro sensorics
- fiber measurement technologies (dispersion measurements)
- fiber sensorics
- coating analysis techniques (e. g. CRD measurement system, see figure below)

SURFACE AND MATERIALS TECHNOLOGIES

- interferometric surface and coating analysis
- optical analysis of materials parameters in surface processes
- surface modification of implants
- optical measurement techniques in the field of quality of life
- laser based spectroscopy techniques
- color and texture measurement techniques

Cavity ring down measurement system to determine optical losses of high-end coatings



The close contact to the WHZ is an essential part of the concept of the new Fraunhofer IWS application center. In parallel to starting scientific research at the new center, several WHZ students commenced work on their bachelor and master theses. The AZOM will also intensify its integration into teaching activities at the WHZ. In the coming winter semester, the Fraunhofer IWS and WHZ will offer joint lectures.

The close collaboration of AZOM with IWS was expressed during a joint booth at the Laser World of Photonics 2015 tradeshow in Munich. The team presented a technology for monitoring laser welding processes, which was developed at AZOM. In 2016 AZOM will participate in the "Innovation Evening for Industry – Industry@Fraunhofer IWS" as well as in the laser symposium "Fiber, Disc & Diode" and the joining technology symposium "Tailored Joining". Additional tradeshow participations are being planned.

Visit of the Saxon Minister of State for Science and Art Dr. Eva-Maria Stange (3. f. l.), Head of Division Hermann Jaekel, SMWK (2. f. l.) and the Rector of the WHZ Prof. Dr. Gunter Krautheim (1. f. l.) at the project group AZOM at the WHZ



COORDINATION

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AZOM is located near the inner city campus of the WHZ. Over the coming months laboratory and office space of 472 m² will be built out. In parallel, modern measurement systems and laboratory equipment are being acquired, installed and paid using state funding. The Free State of Saxony supports the creation of the Fraunhofer application center with 2.6 million euros over the period from 2015-2020.

Essential to the success of the IWS application center will be the establishment of successful research collaborations with industry. AZOM researchers are already working on projects for partners from the automotive industry, where they are working to implement optical metrology for manufacturing processes.