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The ASMEC Advanced Surface Mechanics GmbH is a spin-off from the Institute of Physics of the Technical University of Chemnitz and was established by Dr. Thomas Chudoba, who is a recognized expert in the field of surface mechanics and nanoindentation since many years.

ASMEC provides hardware, software and services for the characterization and analysis of mechanical surface properties in the micro and nano range.

The Universal Nanomechanical Tester (UNAT) is a novel instrument for the measurement of mechanical surface properties in the micro and nano range with maximum forces up to 2N. The unique feature of the instrument is the realization of two completely independent measuring heads for the measurement of normal and lateral load-displacement curves with equal nanometre resolution. Due to the combination of both measuring heads, the UNAT can be used as micro-hardness, wear, scratch, tensile and fatigue tester, as well as profilometer. A high resolution optics with a unique autofocus option for this type of instrument, allows producing well resolved images of small indents or wear tracks. The instrument can also be combined with an atomic force microscope or a white light confocal microscope. The simple replacement of the conventional diamond tips by indenters of any solid material allows the investigation of the original material contact in a tribological application with so far unrivalled accuracy.

Another product is a nanoindentation head which can be installed in a Scanning Electron Microscope (SEM).

ASMEC keeps close contact to leading scientists and institutes in the field of contact mechanics and materials research. It is a partner in several national and international research projects together with different Fraunhofer Institutes or companies like Bosch, BMW or EADS.

Beside hardware, ASMEC develops and offers several software products. Elastica presents the newest developments of contact mechanics in an easy to use, user friendly and very fast form. The purpose of this software is a fast analysis and optimization of coated systems in respect to their mechanical strength during surface contact. Indent Analyser is a software for the analysis of indentation data and the only instrument independent software on the market. In an extensive comparison program together with the Federal Institute of Materials Research and Testing (BAM) it was shown that hardness and modulus results obtained with this software agree better with reference values than that from other software.

Further information can be found on the website www.asmec.de.