Models make ideas visible

The University of Duisburg-Essen at HANNOVER MESSE 2013

UNIVERSITÄT DUISBURG ESSEN

Open-Minded

Highly efficient is what tomorrow's technologies are expected to be, and the lead theme of this year's Hannover Messe makes no exception. This is where decision makers from science and industry are gathering from 8 to 12 April under the heading of "Integrated Industry" and where the University of Duisburg-Essen (UDE) is presenting a range of new concepts.

As machinery and tools become increasingly networked and soon capable of exchanging information in real-time, there is a growing tendency for ever stronger interdisciplinary cooperation. This is the case in a project on sustainable energy supply involving mechanical engineers and industrial designers. The Institute of Turbomachinery is presenting a small gas turbine that achieves over 50 percent efficiency as a result of various process improvements. What is novel here is that electricity can be generated decentrally with such a high level of efficiency. The scientists have with them in Hannover a visual model (scale 1:2) developed in collaboration with the UDE's InnovationsFabrik.

The InnovationsFabrik is additionally investigating future concepts for energy generation as part of a semester project. One product idea is a model of a hydroelectric power plant specifically for small waterfalls in remote rural regions. The idea is being developed by students of Engineering, Mathematics, Computer Science and Industrial Design, who together are searching for solutions to the energy supply of tomorrow.

The Fuel Cell Research Center (ZBT GmbH) has several exhibits relating to the "Energiewende", or energy transformation, cogeneration and electromobility at the exhibition. It is also premiering a compact 30kW fuel cell range extender module for electric vehicles.

Also on show is a highly integrated reformer module that can generate hydrogen for fuel cells.

Innovative high-performance fuel cell components such as corrosion-stable catalysts have also been developed in collaboration with the UDE and the Max-Planck-Institut für Kohlenforschung. Just what potential this technology has – even for large, stationary applications – is demonstrated by the ZBT on a 1.5 metre high bipolar plate.

Locations: Innovationsland NRW, Hall 2, Stand C38 (Institute of Turbomachinery/InnovationsFabrik)

Ministry for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection, Hall 27, Stand E60 (Fuel Cell Research Center, ZBT GmbH)