

# innovative practical market-oriented



Hochschule  
Zittau/Görlitz  
UNIVERSITY OF APPLIED SCIENCES

## Test Facilities - A Selection

- **Solid Carbon Capture Storage (SCCS)** - test facility for the production of storable CO<sub>2</sub> in the form of solid carbon
- **Zittau Flow Tray** - modular designed flow circuit for liquid media with storage tank (18 m<sup>3</sup>) and free fall/spray section
- **Test Field for Human-Robot Interactions**
- **Thermal Energy Storage Test Facility (THERESA)** - see <https://theresa.hszg.de/en>
- **Steam Compressor Test Field (SCTF)** for the optimization, efficiency increase and further development of water vapor compressors
- **Thermo-Mechanical Electricity Storage System (TMS)** - Electricity storage system for sector coupling of electricity and heat with water as a working and storage medium
- **Steam Quality Measuring System (DAQUA)** - System for the development of a hybrid measuring method for steam quality in the high-pressure range
- **Wood Gasification Cogeneration Plant** - wood gasification system with heat exchangers, motorized CHP unit and heat storage tank (storage volume: 2 m<sup>3</sup>)
- **Thermochemical Test Field (TCV)**
- **Micro combustion chamber MB 1500** - test facility for the evaluation of the combustion behavior of solid fuels
- **Steam Turbine with Magnetic Bearings** - large-scale test facility for the investigation of magnetic/arresting bearings

A complete overview of our test facilities is available at <https://ipm.hszg.de/versuchsanlagen>.

## Structure

The Institute of Process Technology, Process Automation and Measuring Technology (IPM) is the the strongest third-party funding unit of the Zittau/Görlitz University of Applied Sciences and realizes application-oriented research and development activities in the field of Energy Technology and Mechatronics.

The research and development activities of the institute are conducted in four departments:

- Nuclear Technology/Soft Computing
- Mechatronic Systems
- Measuring Technology/Process Automation
- Power Generation, Steam Generator and Fuel Technology

## Contact

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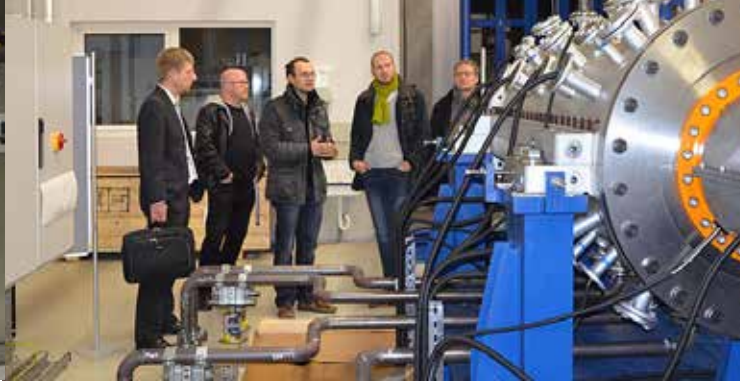
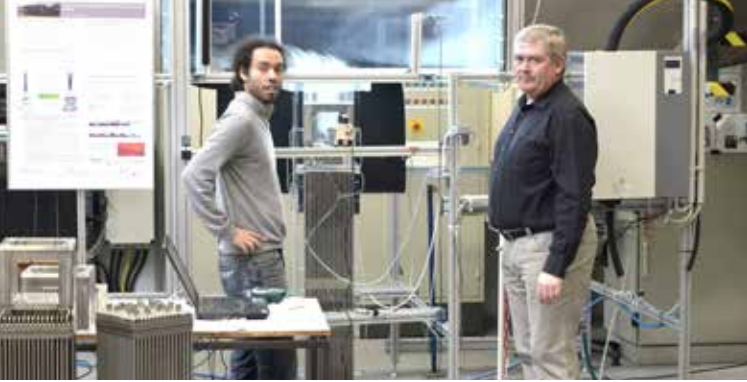
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*Institute of Process Technology,  
Process Automation and  
Measuring Technology (IPM)*



Your partner for  
application-oriented research  
and development



### *Department Nuclear Technology/Soft Computing*

Head of Department: Prof. Dr.-Ing. W. Kästner

#### ■ Nuclear Safety Research

Secured sump suction, loss of coolant accidents causing particle formation and release, methodical and experimental investigations on particle flows

#### ■ Plant and Reactor Safety

Modelling and simulation (model-supported measuring methods, soft computing), thermohydraulics

#### ■ Soft Computing, Machine Learning

Fuzzy systems (Mamdani, Takagi-Sugeno-Kang) / Machine learning: artificial neural networks (multilayer perceptron, self-organizing map...), support vector machines (SVM)

#### ■ Control Engineering, Process Control

Electrical and process engineering

#### ■ Digital Image Processing

Object recognition, object tracking, optical quality control, etc.

#### ■ Theoretical and Experimental Investigations

Two-phase flows with water/steam/inert gases

#### ■ Simulation Technology

Simulation codes ATHLET, RELAP, ANSYS CFX, COCOSYS

### *Department Mechatronic Systems*

Head of Department: Prof. Dr.-Ing. F. Worlitz

#### ■ Design, Layout/Optimization/Functional Integration and Project Planning of Automation & Mechatronic Systems

#### ■ Modeling and Simulation of Technical Systems

#### ■ Rapid Control Prototyping, Hardware-in-the-Loop

#### ■ Design and Construction of Mechatronic Components

#### ■ Measurement and Sensor Technology

#### ■ Installation and Commissioning of Technical Systems

#### ■ Monitoring, Status Diagnosis and Technical Diagnosis

#### ■ Control Engineering, Power Electronics

### *Department Measuring Technology/Process Automation*

Head of Department: Prof. Dr.-Ing. A. Kratzsch

#### ■ Development of Measurement Methods and Measurement Technology

#### ■ Measurement, Control and Regulation of Production and Process Engineering Processes

#### ■ Technology Development

Sector coupling / Power to X technologies / Carnot battery / Green local and district heating / Robotics / Digitalization and automation

### *Department Power Generation, Steam Generator and Fuel Technology*

Head of Department: Prof. Dr.-Ing. habil. T. Zschunke

#### ■ Process Diagnosis and Optimisation of Power Plants e. g. operation management of power plant systems, steam generators, Firing systems and thermo-dynamic conversion plants

#### ■ Complication Analysis and Condition Monitoring for Firing Systems

#### ■ Modelling and Simulation

e. g. stationary and fluid dynamic simulation of power engineering systems

#### ■ Data Analysis, Modelling and Optimization of Energy-Converting Processes

#### ■ Evaluation of Firing Performance Behaviour of Fuels

#### ■ High-Temperature Measurement Methods