

innovative practical market-oriented



Hochschule
Zittau/Görlitz
UNIVERSITY OF APPLIED SCIENCES

Test Facilities - A Selection

- **Universal Pressurizer Test Facility**
Test rig to analyze phenomena in thermo-hydraulic two-phase flows
- **Fragmentation Test Rig**
Rig to fragment materials and to expose components to steam (up to 7 MPa) and water (up to 12 MPa)
- **Zittau Flow Tray**
Containment sump model as it exists in PWR plants - used to investigate the integral response of a coolant flow containing solid particles
- **Ring Line II:**
Modularly constructed test rig made of acrylic glass having vertical and horizontal test paths to be switched on or off in order to investigate multi-phase flows
- **Ring Channel**
Test rig made of acrylic glass for investigation of multi-phase horizontal flows
- **Test rig „Subcooled Boiling“**
Facility for investigation of heat transfer phenomena during different boiling conditions and parameters
- **Zittau Power Plant Laboratory (ZKWL)**
Thermal Energy Storage Test System THERESA, Test rig for magnetic bearings and catcher bearings MFLP, Thermo-chemical test area TCV
- **Micro-Combustion chamber MB 1500**
Test rig for evaluation of combustion behaviour of coal and others solid combustion materials
- **Magnetic Bearing Test Facility FLP 500**
Large test facility including catcher bearing test rig, evaluation units, instrumentation and control (driving power 300 kw)

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 R&D activities of the institute are conducted in five departments.

- Measuring Technology/Process Automation
- Nuclear Engineering/Soft Computing
- Mechatronic Systems
- Applied Electronics
- Power Plant, Steam Generator and Firing Technology

Contact

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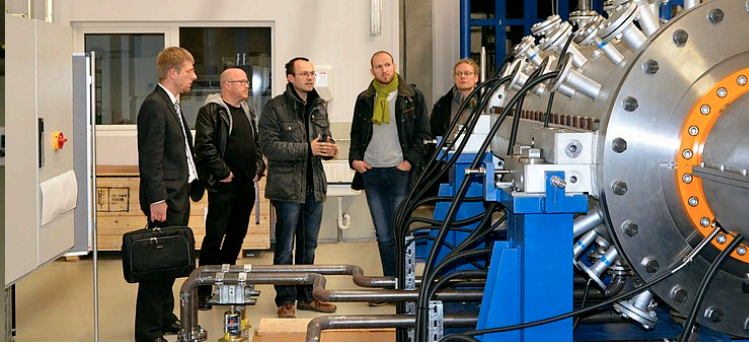
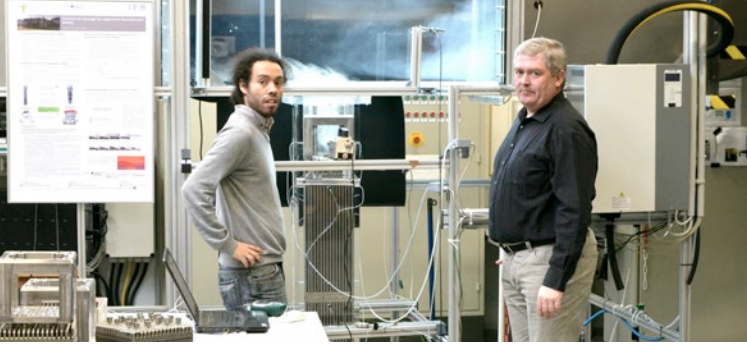


*Institute of Process Technology,
Process Automation and
Measuring Technology (IPM)*



Partner for application-oriented research and development actions

RESEARCH_WITHOUT_BORDERS



Department Nuclear Engineering/Soft Computing

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

- **Nuclear Safety Research**
Protected 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 (Mamdami, Takagi-Sugeno-Kang)
Machine Learning: Artificial Neural Networks (Multilayer Perceptron, Self-Organising Map...), Support Vector Machines (SVM)
- **Control Engineering, Process Control**
Electrical and process engineering
- **Digital Image Processing**
Object recognition, tracking, optical quality control, etc.
- **Theoretical and Experimental Investigations**
Two-phase flows 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 and Planning of Automated and Mechatronic Systems**
Rapid prototyping, CAE, modelling and simulation of mechatronic systems, FEM
- **Magnetic Bearings**
Design and Planning, control technology, power electronics, diagnosis
- **Sensor Technology**
- **Monitoring and Technical Diagnosis**

Department Measuring Technology/ Process Automation

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

- **Energy Storage Systems for thermal processes focusing on steam accumulators, displacement accumulators and phase change storage systems**
Development, design and planning of storage concepts
Modelling and simulation, experimental investigations
- **Non-invasive Measurement Procedures on System State Diagnosis**
Development of measurement procedures
Modeling and simulation
Experimental investigations (e.g. at test facility NiCoLe)
- **Digital Safety Instrumentation and Control**
Structure analyses
Modelling and simulation
Safety evaluations relating the contemplated structures

Department of Power Plant, Steam Generation and Firing Technology

Head of Department: Dipl.-Ing. U.-S. Altmann,
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**

Department of Applied Electronics

Head of Department: Prof. Dr.-Ing. S. Kühne

- **Development of Measurement Methods in Analogue and Digital Technology**
- **Development of Power Electronic Units in the Lower kW-Range**
- **Development of Controlling Elements for Electric Drives (Rectifiers and Inverters)**
- **Contactless Energy Transfer**
- **Evaluation and Process Electronics of Measuring Technology**