

The Institute of Power Electronics and Electrical Drives carries out research work and education in the areas of power semiconductors and their application, power electronic converters and electrical drives including their enhanced control. The research work comprises theoretical investigations as analysis, modeling, simulation as well as experimental work as manufacturing and testing of power and control hardware. Besides this, solutions for industrial applications are worked out.

### Key Research Fields & Competence Areas

- **Power Conversion**
  - Power electronic converters and control
  - Power semiconductor application and characterization
  - Application of new components (SiC)
- **Control of Converters and Drives**
  - Modern control of pwm rectifiers at disturbed grid
  - Modern control of drives including vibration suppression
- **Condition-Monitoring and Fault-Tolerant control**
- **Converters and Generators for Renewables**
  - Wind park simulation and validation
  - Fuel cell and photovoltaic inverters
  - Grid impedance estimation
- **Industry Orientated Research and Assistance**

### Institute Highlights

- **Control, Converter and Drives Laboratory**
- **Drive Test benches (3 kW, 7,5 kW, 22 kW, 90 kW)**
- **Wind Power Test benches (4 x 22 kW)**
  - Induction, doubly fed, PMSM, field exc. SM machines
- **Simulation Systems**
  - Matlab/Simulink, Simplorer, Saber, PSCAD
- **Control Hardware and -software**
  - Mikrocontroller, FPGA, DSP, pcb layout-system,
  - Rapid Control Prototyping Systems (dSpace)

### Contact Information:

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