

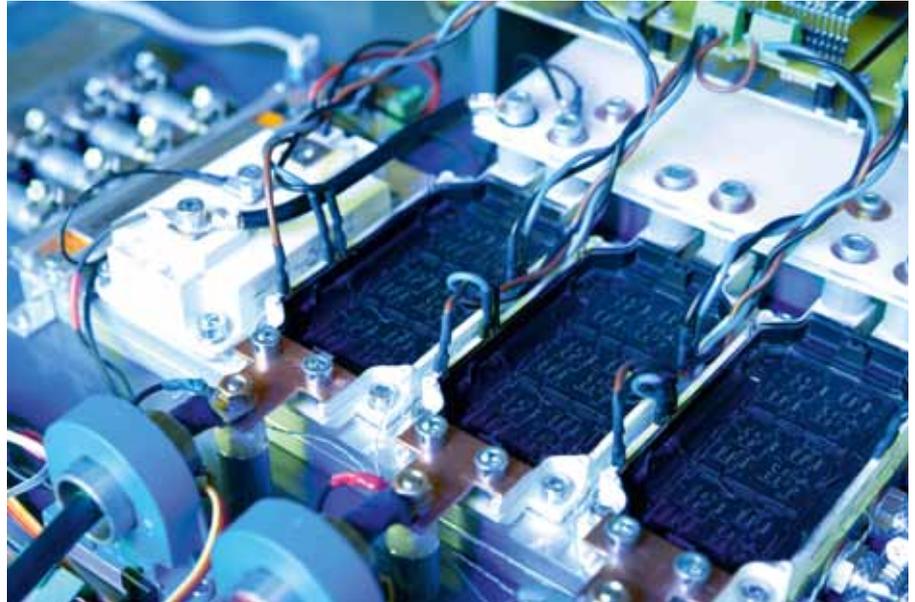
INSTITUTE FOR POWER ELECTRONICS AND ELECTRICAL DRIVES UNIVERSITY OF STUTTGART

Research and education

The Institute for Power Electronics and Electrical Drives is in the faculty of computer science and electrical engineering, University of Stuttgart, responsible for the subjects power electronic, automatic control and electrical drives in research and education. Actual focused topics in the scientific activities are

- Power electronics and electrical drives for automotive traction applications,
- Methods for sensorless position measuring at electrical machines,
- Energy efficient drives in industrial automation,
- Reliability of power electronic systems,
- Circuit topologies and advanced modulation schemes for power converters and special current sources for technical processes,
- Power electronic emulation of electrical machines and power line systems,
- Contactless power transmission systems for mobile applications,
- High current sensors with excellent dynamic performance.

In the mentioned fields the scientific staff possess many years of experience in research and development, both in industrial as well as scientific environment. Research outcome is continuously published at conferences and journals and becomes part of education. The institute is part of the Robert Bosch Centre for Power Electronics (RBZ).



Experiment to analyse the thermal behaviour of the power semiconductors in an automotive traction inverter

Technical facilities

The Institute for Power Electronics and Electrical Drives is equipped with

- Laboratory with ca. 20 workplaces for research and education,
- Laboratory for electrical drives with rated power up to 250 kW,
- Heating oven for thermal measurement and analysis
- Software-tool for simulation in time- and frequency domain
- Multiphysics FEM simulation-tool
- Development tools for microprocessor- and DSP systems
- Development tools for programmable logic devices

- CAD-Tool for circuit design and PCB routing
- Workstation for SMT assembling
- Laboratory workshop, equipped for manufacturing prototypes of electrical machines, heat sinks and precision components for sensors.



Test bench for a high speed drive