



Institute of Electrical Drives and Machines Vienna University of Technology, Austria

The Institute of Electrical Drives and Machines has been headed by Univ.Prof. Dr. Manfred Schroedl since 1998. It has three professors (Prof. Schroedl - Drives and Machines, Prof. Rummich – Alternative Energy, Prof. Zach – Power Electronics). The institute covers full competence in the field of electrical drives (motor construction, inverter design, prototyping, motor control hard-and software, integration in superimposed systems via bus systems (CAN etc). A focus is sensorless control (INFORM method).

Key Research Fields & Competence Areas:

- **Design and Simulation of Electric Machines**
Finite Element analysis 2D, 3D
- **Controlled Drives**
Sensorless Permanent Magnet and Induction Motor control, High speed machines, Monitoring of machines
- **Power Electronics**
Line-friendly rectifier systems, inverter topologies, pulsed current sources
- **Additive Energy Systems**
Drives for wind mills, electric vehicles, converters for solar systems.
- **Automotive Applications of PM drives**

Institute Highlights:

- **INFORM Method for Sensorless Control**
Applied to Permanent Magnet and Induction Motors down to standstill at full torque
- **Rapid Prototyping Facilities**
water jet cutting of motor active parts, mechanical and electronic prototyping equipment
- **Test Benches of Electric Drives and Machines**
highly dynamic control and measurement up to 100 kW
- **High Speed Motors**
e.g. built 100.000 rpm / 15 kW PM synchronous drive
- **DSP Infrastructure for Fast Control Algorithms**

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