



The research activities at the Institute FAPS focus on innovative manufacturing technologies for mechatronic products. Therefore the Institute runs two laboratories with a high-quality machine and facility equipment with about 2000 square metres. The qualification of mechatronic devices can be realized using test systems for climatic, temperature and vibrational loads. Capable software enables computer based development and simulation of products and processes. The Institute is located in Erlangen and Nuremberg and has 40 employees of different disciplines like mechanical and electrical engineering, computer sciences, mechatronics and industrial engineering.

Key Research Fields & Competence Areas:

- Packaging of electronic devices
- Assembly of electronic components (Printing, Placement, Soldering, Inspection and Test)
- Manufacturing technologies for electrical drives (Winding, Joining Technologies, Magnet Assembly)
- Technologies and machine equipment for final assembly
- Development of Joining Technologies

Institute Highlights:

- Macromechatronics Laboratory with a multiplicity of handling and assembly systems
- Micromechatronics laboratory with cleanroom and extensive manufacturing equipment for electronics production
- Initiation of research projects focussing on power electronics and electrical drives
- Preparation of doctoral thesis
- Education of students in lectures and practical courses

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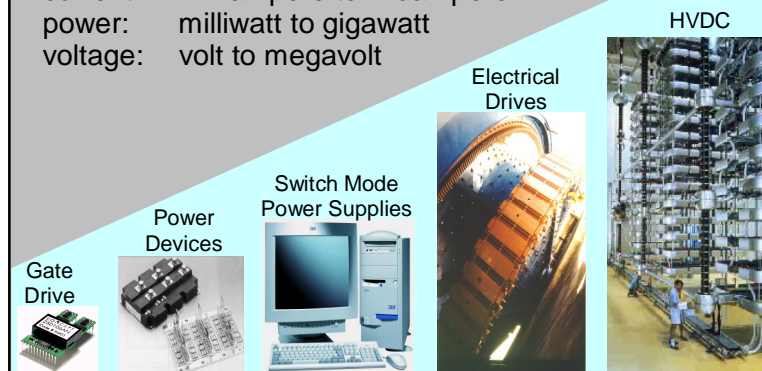
In order to coordinate their research and education in power electronics, several chairs of the department of Electrical, Electronic and Communications Engineering of the Friedrich-Alexander University Erlangen-Nuremberg founded the Center for Power Electronics in February 2005. The Center covers the wide range of competences needed for research and development of future power electronic systems, e.g. electrical drives, consumer electronics, electrical power transmission and distribution, automotive and medical applications.

Key Research Fields & Competence Areas:

- ∅ Optimisation of Switch Mode Power Supplies
- ∅ Calculation/Simulation of Electrical Power Systems with FACTS or other Converters
- ∅ New Converter Topologies for Electrical Drives, Use of new SiC-Semiconductor Devices
- ∅ Power Semiconductor Technology, Devices on Si and SiC
- ∅ Discrete and integrated Power Semiconductor Devices
- ∅ Design of Inductive Components, EMC

Institute Highlights:

from semiconductor devices to applications
current: milliampere to kiloampere
power: milliwatt to gigawatt
voltage: volt to megavolt



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