



Universidad de Oviedo

Electrical Engineering Department

Electric Drives and Power Electronics

Manpower:

- ***Fernando Briz, Associate professor***
- ***Alberto Díez, Associate professor***
- ***Juan M. Guerrero, Associate professor***
- ***Pablo García, Associate Professor***
- ***Daviz Díaz-Reigosa, Associate professor***
- ***Alberto Zapico, Researcher (Ph.D. student)***
- ***Islam El-Sayed, Researcher (Ph.D. student)***
- ***Marcos Cuadrado Vega***

Achievements (1998-2010):

- ✓ **60 projects and contracts with companies**
- ✓ **31 papers in international journals (IEEE Transactions)**
- ✓ **50 papers in international conferences**
- ✓ **8 PhDs (thesis)**

Partners:

Industry:

- **HC Energy**
- **Arcelor-Mittal**
- **Alstom Transport**
- **Ansaldo**
- **PMG Powder Metal**
- **AZSA**
- **Duro Felguera**
- **Gamesa**

Collaborations:

- **University of Wisconsin-Madison**
- **Tennessee Technological University**
- **Ford motor company**
- **Nissan**
- **CEIT**

Current fields of research:

- ✓ **Design, control and supervision of AC drives**
 - **Vector control**
 - **Current regulation**
 - **Sensorless control**
 - **Diagnostics**
 - **Design of machines**

- ✓ **Other topics**
 - **Magnetic levitation**
 - **Flywheels**
 - **Microgrids**

Current applications:

- ✓ **Supervision and diagnostics of machines and power systems**
 - **Power Plants** (*collaboration with HC Energy*)
 - 0.1 to 2 MW
 - 400 to 6.6 kV
 - **Railway** (*collaboration with ALSTOM Transport*)
 - 3 MW
 - 3 kV

- ✓ **Energy: Efficiency and power quality**
 - **Cogeneration** (*collaboration with HC Cogeneration*)
 - 1 – 3 MW
 - 1 to 10 kV
 - **Steel industry** (*collaboration with Arcelor-Mittal, CRM, BFI*)
 - multi MW
 - 6 & 30 kV

Foreseen applications:

Fields

- ✓ **Electric drives**
- ✓ **Electric vehicles and electric traction**
- ✓ **Wind generation**
- ✓ **Active filters**
- ✓ **Energy storage**
- ✓ **Utility grid applications**

Technologies

- ✓ **SiC power devices**
- ✓ **Multilevel power converters**