Prof. Helmut Weiss

Montanuniversitaet Leoben, Austria

Born in 1956 in Klagenfurt (Austria)

Education

1975 – 1982 Diploma Study of Electrical Engineering at Technical University of Graz, Austria, specialization in electrical machines and drives

1982 – 1988 PhD Study at Technical University of Graz, Austria, Institute of Electrical Energy Conversion, “Control Strategy and Power Electronics Circuit for the Energy Conversion System of a Locomotive with Voltage Source DC link at 15 kV - 16 2/3 Hz Grid”, PhD with distinction

Professional Work

1982 – 1988 Assistant at Institute of Electrical Energy Conversion at Technical University of Graz

1988 – 1995 Senior Scientist and Group Leader at SIEMENS AG, Erlangen, Germany, field of Power Electronics and Drives Development

1995 – 2022 Full Professor at Montanuniversitaet Leoben, Austria, head of institute of Electrical Engineering, lectures on basics of electrical engineering, measurement and control methodology, electrical drives, power electronics, electrical energy engineering with emphasis on high efficiency systems and renewable energy, large Lithium-ion battery systems and very high power applications, electrical heating

Industrial Projects with SIEMENS AG (excerpt):

- Drive for brown coal motor shovel RBW 292 (Rheinbraun company, Cologne, Germany), peak power 3 x 2 MW, follow-up order RBW 293
- Line rectifier control for Joint European Torus (JET), United Kingdom
- System variants design for electric vehicles (cars)
- Rotating system-tie converter Muldenstein for German Railways (GTO converter with peak power 18 MVA): laboratory model, control system, commissioning, on-site improvement, operation survey
- Rotating system-tie converter Hamburg-Harburg for German Railways: (52.5 MW(peak) slipring induction machine drive for frequency-elastic operation of 16.7 Hz single-phase synchronous generator): System design

Industrial projects as professor at Montanuniversitaet Leoben, Austria, head of institute of Electrical Engineering (excerpt):

- Rotating system-tie converter Hamburg-Harburg for German Railways: (52.5 MW(peak) slipring induction machine drive for frequency-elastic operation of 16.7 Hz single-phase synchronous generator): Control system design, control system implementation, commissioning of induction machine side, operation support
- Re-installation of 18 MVA static system tie converter at Nuremberg for German Railways, system development and improvement, operation support
- 2 x 30 MW system tie converter Timelkam for Austrian Railways, support in order preparation, short circuit operation, commissioning, power and efficiency measurements, continuous operation measurement, final acceptance test
- 50 MW system tie converter Uttendorf for Austrian Railways, support in order preparation, short circuit operation, transient operation commissioning, power and efficiency measurements, continuous operation measurement, final acceptance test
- System design, Lithium-ion battery re-use test and implementation, battery monitoring and balancer system design, commissioning of battery section, operation support for OeBB 1063.038 locomotive: 200 kWh Lithium-ion battery as add-on on existing shunt locomotive for extensive off-catenary shunting and traction application tests with up to 1600 tons trains
- Lithium-ion battery destruction and fire effect handling testing at some locations for different fire brigades and several companies, fire brigade direct information on Lihium-ion battery fires, safety precautions for companies, detection and handling of battery fires
- Fault condition detection at excitation coils for 3 MW generator,

Conference chairman at 9th European Conference Power Electronics and Applications (EPE 2001) in Graz, Austria
About 200 publications as author or co-author at conferences and for journals and in internal restricted/confidential reports for companies.