



Klaus Fröhlich

Education

- Technische Bundeslehranstalt - Electrical Power Engineering in Salzburg, Austria, 1964
- Diploma in Communication Technology, Univ. of Technology in Vienna, Austria, 1972
- Ph.D. in Electrical Power Engineering, (Subject: No load characteristics of HVAC Circuit Breakers as a development tool), Univ. of Technology in Vienna, Austria, 1976

Professional Experience in chronological order:

- 6 years Assistant at the Institute for Switchgear, Univ. of Techn. Vienna (Prof. W.Rieder)
Topics: Dielectric Problems of the interrupter gap of HVAC CB's (Oil, Vacuum); current chopping of vacuum interrupters, dielectric strength of vacuum interrupter gaps after switching
- 6 years high power laboratory of Brown Boveri Baden, Switzerland:
Responsible for theory and practice of synthetic high power testing of HVAC switchgear, New-cost efficient test circuits
- 4 years head of the high voltage development lab of BBC (later ABB) in Zürich, Oerlikon.
Main topics: GIS and other high voltage equipment, type testing, system modelling and analysis, development of new principles, trouble shooting
- about 1 year at ABB Power Circuits, Greensburg, PA, USA
Development of the first 550kV SF₆-Air composite bushing (for dead tank breakers), technology transfer from Switzerland to the US
- 1990 to 1997 full professor for „Switchgear and high voltage technology“ at the Univ. of Technology, Vienna, Head of the Institute of the same name
Main topics: Composite insulation materials for GIS; alternative interrupting principles for CB's; controlled switching of HVAC circuit breakers, vacuum switches
- 1997 to 2010: Full Professor for „High Voltage Technology“ at the Swiss Federal Institute of Technology (ETH) in Zürich, Switzerland. Head of the Institute for Electrical Power Systems and High Voltage Technology.

Main research topics:

- Composite insulation materials for GIS and large electric machinery
 - Model based diagnosis of apparatus for electrical power transmission and – distribution
 - Controlled switching of HVAC circuit breakers (fault currents, transformers, long unloaded lines)
 - Cost assessment for new innovation in power subsystems based on life cycle costs
 - New principles of circuit interruption in MV systems, Fault current limiters
 - Intelligent monitoring of HVAC circuit breaker drives
 - Intelligent model based gas leak detection in GIS
 - Smart grids with multi energy carriers
 - Application of electric energy storage in the system
 - Model based life estimation of large HV power transformers
- Supervisor of 35 Ph.D. students in close collaboration with more than 20 companies in the electric power sector (70% external funding)
 - About 150 publications in journals and conferences
 - Emeritus status since 2010

Contributions to Cigre (International Council for Electric Power Systems):

- Board member of the Swiss CIGRE National Committee
- **Chairman of Study Committee A3, High Voltage Equipment (2002-2006)**
- **Chairman of the CIGRE Technical Committee (2006-2012)**
- **President of CIGRE (2012-2016)**

Contributions to other organizations:

- IEC – working groups: IEC 17C.02, IEC 17A.15, IEC 17A.14 (TF convenor)
- Board member of:
 - Electrosuisse (Association for Electrical Engineering, Power and Information Technologies-Switzerland)
 - Power Engineering Society – Switzerland
 - High Voltage Testing- and Engineering Commission - Switzerland (Scientific Advisor)
- Elected member of the Swiss Academy of Engineering Sciences
- Elected member of the European Academy of Sciences and Arts
- Guest Professor at Tsinghua University, China
- Guest Professor at Hunan University, China

Awards: Cigre Technical Committee Award, Cigre-Honorary Member, IEEE Live Fellow, Electrosuisse Fellow

