

Ingegneria dei sistemi elettrici
Electric systems

DII research group
Power System Group



Roberto Benato
roberto.benato@unipd.it
Phone: +390498277532

<http://www.dii.unipd.it/en/power-system-group>

The normative activity is carried out in collaboration with:

Dr. Sebastian Dambone Sessa,
post-Phd at the Department of Industrial Engineering, Padova.



Main research topics:

- Smart grids: the operation and control of active networks
- Voltage regulation in the distribution network with high penetration of distributed generation
- Large-scale energy storage in the network
- EHV/HV dc and ac innovative transmission lines e.g. insulated cables and gas insulated lines
- Synergy between railway and highway infrastructures and insulated cables
- Multiconductor cell analysis (MCA) of asymmetric systems by means of self-implemented matrix procedures (insulated cables with screens and armours, gas insulated lines with enclosures, overhead lines with one or more earth wires)

Normative (IEC, IEEE) and working group activities (CIGRÉ) of Power System Group

IEEE (Institute of Electrical and Electronic Engineers founded in 1884) and Cigré (Council on Large Electric Systems founded in 1921) are the two most important international non-profit associations in the electrical and electronic fields for sharing knowledge and joining forces in order to improve electric power systems of today and tomorrow. IEC (International Electrotechnical Commission founded in 1906), is the world’s leading organization for the preparation and publication of International Standards for all electrical, electronic and related technologies. Their activities are chiefly focused on the creation of working groups (WGs) or task forces aiming at investigating given topics and producing standards or technical brochures (TBs). The participation in these WGs is decided by the different associations by choosing among the greatest experts in those topics. To be chosen to participate in a WG is a prestigious award even if it is an economic burden since no refund of travel expenses is foreseen (and no other money reward). The Cigré WG duration is nominally of three years after which a comprehensive TB is published. IEEE and IEC standards can take from 3 to 10 years. IEEE, IEC standards and Cigré TBs are not indexed in the major databases but they do have a great scientific impact. Some components of Power System Group have participated in 11 WGs whose TBs or Standards are shown below. In two of these ones (TB # 351 and 639), R. Benato has been nominated as Secretary. Moreover, R. Benato and S. Dambone Sessa are Members of Cigré WG B1.56 “Cable rating verification” and WG B1.45 “Thermal monitoring of cable circuits and grid operators’ use of dynamic rating systems” which will be disbanded in 2018.



Cigré TBs with author R. Benato (TBs: 351, 403, 531, 556, 639, 689) and S. Dambone Sessa (TB # 680)



IEEE Standard on Gas Insulated Lines (R. Benato)



IEC Technical Specification on Energy Storage System (R. Benato)