Multi-functional Inverter of Microgrids
Xiao Zhaoxia（肖朝霞）, Fan Shijun（樊世军） 7.20.2015
Tianjin Polytechnic University

**Intrudctions**
The main activities of TJPU’s Microgrid Laboratory focus on control and stability analysis of Microgrids. Multifunctional inverters of Microgrids is defined to provide UPS, reactive power compensation, harmonic suppression, frequency auxiliary regulation, power quality improvement and so on that can help to improve the supply reliability, power quality, economy of the users, and a friendly interaction with the grid. A hierarchical control strategy is usually employed to achieve the multi-functions if the system has different operation modes. When the Microgrid is grid-connected, multifunctional inverters can supply the reactive power compensation, harmonic suppression, frequency auxiliary regulation and power quality improvement. When the grid fails, it can provides short time UPS function for users; When the Microgrid is islanded, it can realize the no difference regulation of the Microgrid frequency and voltage.

**References:**