Contribution ID: **319** Type: **Poster Presentation**

A ZCS AC/DC Converter with LCL

Thursday, 7 July 2016 14:40 (20 minutes)

Abstract—This paper studies an inductor-capacitor-inductor(LCL)voltage-source converter(VSC) which can be implemented by zero current switches(ZCS). The ZCS has potential applications in improving the efficiency of high-voltage high-current system, such as servo power supplies at over 10 MW for the compressed plasma suggested in[Li, G. High-gain high-field fusion plasma,Scientific Reports, 2015, 5]. This converter is composed of an ac/dc/ac insulated-gate bipolar transistor-based VSC converter and a passive LCL circuit designed for matching the conventional PWM converter. The converter parameters are tested for designing LCL circuit to have optimal response during the faults, realize ZCS control,and minimize converter losses.The simulation model is built based on the MATLAB platform.The simulation results show that the rectifier has good controllability and testing rig is being built.The simulation confirms the capability to control the load current for the compressed plasma .

Primary author: Mr ZHU, FENG (University of Science and Technology of China)

Co-authors: Prof. LI, GE (Institute of Plasma physics, Chinese Academy of Sciences); Ms HANG, Qin (University of Science and Technology of China)

Presenter: Prof. LI, GE (Institute of Plasma physics, Chinese Academy of Sciences)

Session Classification: Poster 2-A

Track Classification: Power Electronics, Power Supplies, Prime Power, Rotating Machines, and Energy Converters