



Contribution ID: 44

Type: Poster

Design a Suitable Test Scheme for Triggering Bypass Protection Test of ITER PF Converter Unit

Monday, 5 June 2017 13:40 (2 hours)

The external bypass, as an important components of the international thermonuclear experimental reactor (ITER) poloidal field converter unit (PFCU), will provide a freewheeling loop for the load current to protect the magnets and PF converter modules from being damaged by over-current and over-voltage under fault conditions. The triggering bypass protection test is used to verify that the designed bypass can be triggered normally and endure the rated load current. In this paper, a suitable test scheme is designed for triggering bypass protection test of ITER PFCU based on the PF converter integrated test platform in ASIPP. This test scheme includes the triggering bypass method, calculating the trigger angle of the converter in inverter and a method of reducing the bypass current to zero in the absence of ITER mechanical switch. The feasibility of the test scheme is successfully verified by the simulation results and test results, both of which prove that the external bypass of ITER PFCU can be triggered normally and withstands the load current for 100ms. Due to the integrated inductance of the actual DC output circuit, the actual transfer time of bypass current in the test is more than the simulation results.

Eligible for student paper award?

No

Authors: Dr ZHANG, Xiuqing (Institute of Plasma Physics Chinese Academy of Sciences); Prof. FU, Peng (Institute of Plasma Physics, Chinese Academy of Sciences); Prof. GAO, Ge (Institute of Plasma Physics, Chinese Academy of Sciences); Prof. SONG, Zhiqian (Institute of Plasma Physics, Chinese Academy of Sciences); Mr HASSAN, Mahmood ul (Institute of Plasma Physics, Chinese Academy of Sciences)

Presenter: Dr ZHANG, Xiuqing (Institute of Plasma Physics Chinese Academy of Sciences)

Session Classification: M.POS: Poster Session M

Track Classification: Power supply systems