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Research and Development Progress of the ITER PF Converter System

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This paper presents the research and development (R&D) progress of the ITER Poloidal Field (PF) converter for the coil power supply system applied in the ITER project. The PF converter system is composed of 14 PF Converter Units (PFCU), with a total apparent power of 1.2 GVA and a rated dc current of 55 kA. Due to the huge system power, unprecedented short circuit level, high reliability and availability requirements, special load characteristics and dynamic performance for the plasma control, so the special Fault Suppression Capability (FSC) criterion, sequential control strategy and stringent short circuit test requirements should be adopted and implemented in the design and R&D of the PF converter system. In order to solve these technical challenges, the full scale prototype R&D work of PFCU, which including system analysis, structure design, manufacturing, components test, system integration and improvement, has been accomplished successfully by ASIPP on schedule, and the following Final Design Review (FDR) and Manufacturing Readiness Review (MRR) of PF converter procurement package have also been completed smoothly. At present, the series production of the PF converter system are going under control.

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China

Primary author: Dr SONG, zhiqian (Institute of Plasma Physics, Chinese Academy of Science,)

Co-authors: Dr GAO, Ge (Institute of Plasma Physics, Chinese Academy of Science); Dr LI, Jinchao (Institute of Plasma Physics, Chinese Academy of Science); Dr JIANG, Li (Institute of Plasma Physics, Chinese Academy of Science); Prof. XU, Liuwei (Institute of Plasma Physics, Chinese Academy of Science); Prof. FU, Peng (Institute of Plasma Physics, Chinese Academy of Science); Dr HUANG, Yiyun (Institute of Plasma Physics, Chinese Academy of Science); Dr HUANG, lianshen (Institute of Plasma Physics, Chinese Academy of Science)

Presenter: Dr SONG, zhiqian (Institute of Plasma Physics, Chinese Academy of Science,)

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