

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Design of magnetic field configuration in Space Plasma Environment Research Facility (SPERF)¹ QINGMEI XIAO, ZHIBIN WANG, XIAOGANG WANG, Laboratory for Space Environment and Physical Sciences, Harbin Institute of Technology, CHIJIIE XIAO, School of Physics, Peking University, JINXING ZHENG, Institute of Plasma Physics, Chinese Academy of Sciences, PENG E, QIUYUE NIE, AOHUA MAO, Laboratory for Space Environment and Physical Sciences, Harbin Institute of Technology — The Space Plasma Environment Research Facility (SPERF) for geospace plasma environment simulation, as a component of Space Environment Simulation Research Infrastructure (SESRI), is designed to investigate fundamental space plasma phenomenon such as magnetic reconnection at magnetopause and magnetotail, as well as energetic particles transport and interaction with waves in magnetosphere, etc. To achieve the scientific and experimental goals, it is essential to realize the magnetic field configuration. In this report, the magnetic field coils, including four flux cores for simulating the magnetosheath field and plasma, a dipole coil for simulating the inner magnetosphere a disturbance coil for simulating magnetic storm distortion, and a group of magnetotail coils for simulating the magnetotail and the near earth neutral line, are designed to imitate the large-scale space structures based on the numerical simulations and the scaling relation of hydromagnetism between the laboratory and the magnetosphere. Three scenarios with operations of various coils to simulate specified processes in space plasmas will also be presented.

¹This work has been supported by National Nature Science Foundation of China (Nos. 11261140326, 11405038)

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Date submitted: 31 Jul 2015

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