

Abstract Submitted  
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**Conceptual Design of Tail-Research EXperiment (T-REX) on Space Plasma Environment Research Facility** QINGMEI XIAO, XIAOGANG WANG, PENG E, CHAO SHEN, ZHIBIN WANG, AOHUA MAO, Harbin Institute of Technology, CHIJIE XIAO, Peking University, WEIXING DING, University of California at Los Angeles, HANTAO JI, YANG REN, Princeton University — Space Environment Simulation Research Infrastructure (SESRI), a scientific project for a major national facility of fundamental researches, has recently been launched at Harbin Institute of Technology (HIT). The Space Plasma Environment Research Facility (SPERF) for simulation of space plasma environment is one of the components of SESRI. It is designed to investigate fundamental issues in space plasma environment, such as energetic particles transportation and the interaction with waves in magnetosphere, magnetic reconnection at magnetopause and magnetotail, etc. Tail-Research Experiment (T-REX) is part of the SPERF for laboratory studies of space physics relevant to tail reconnection and dipolarization process. T-REX is designed to carry out two kinds of experiments: the tail plasmamoid for magnetic reconnection and magnetohydrodynamic waves excited by high speed plasma jet. In this presentation, the scientific goals and experimental plans for T-REX together with the means applied to generate the plasma with desired parameters are reviewed. Two typical scenarios of T-REX with operations of plasma sources and various magnetic configurations to study specific physical processes in space plasmas will also be presented.

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