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Thu-Af-Po.03-02: Researches on Disconnectable Superconducting Magnetic Drivers

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Magnetic drive is a technology that utilizes magnetic force to achieve non-contact driving, which has advantages such as high efficiency, reliability, and environmental protection. It can meet the needs of different working conditions and has important application prospects. Due to the lack of disconnection function in magnetic drives, we conducted researches on magnetic drivers based on superconducting bulk and superconducting magnet in this presentation. The principle and structure of superconducting magnetic drives and their disconnection devices were explained, and the simulation calculations and optimization designs were carried out for the breakable superconducting magnetic drives and their disconnection devices. The prototype of superconducting magnetic drives and breakable magnetic drives were developed, and a testing platform for superconducting magnetic drives was built. Performance tests were conducted on the developed magnetic drives and magnetic disconnectors.

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