

**Electromagnetic Field and Structural Analyses for Superconducting Flywheel
Energy Storage System**

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We have been developing a flywheel energy storage system with superconducting magnetic bearings. Unique point of our superconducting magnetic bearing (SMB) is that it consists of a superconducting magnet and superconducting bulks. We have demonstrated the stable levitation and enough force generation to levitate flywheel rotor of several tons by flywheel test equipment with these SMBs. We are currently developing the demonstration equipment for power stabilization using this SMB technology with financial support from New Energy and Industrial Technology Development Organization (NEDO). In this paper, we report the electromagnetic field analyses of SMB and the rotor dynamics analyses of a rotating body for NEDO demonstration equipment design.