

A Properties Measuring System for HTS Wires

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Twenty years have passed since the discovery of the phenomenon of high-temperature superconductivity. Studies have now shifted away from basic research and are focusing on the field of application. At the same time, remarkable progress has been in the field of high-temperature superconducting (HTS) wires made of rare earth (RE) coated materials featuring high values of critical current in the environment where the temperature is higher and the magnetic field is stronger than ever. In this context, Railway Technical Research Institute (RTRI) has started a study on the application of RE coated wires to HTS magnets for the MAGLEV system. In this study, it is important to examine thoroughly the properties of the wire usable and reflect them in the design of superconducting magnets. Therefore, the authors have developed an HTS wire testing-device to evaluate the conductivity characteristics of HTS wires in detail under arbitrary temperature and magnetic field conditions.