

Development of a Compact Permanent Magnet System Based on High Tc Superconductors

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We have designed and fabricated a compact, lightweight and mobile permanent high-Tc superconducting magnet system using melt-processed bulk rings. Magnetic field distribution inside the annular magnet reached 0.75T to 2.59T, for one to ten rings, respectively. The increasing number of rings enhanced magnetic field in the center position and caused the field to be flatter over the entire surface. Using this new permanent magnet, we successfully magnetized several melt-processed bulk samples at 77 K. Use of simple superconducting permanent magnet for magnetizing bulk melt-processed materials can open new technological windows in various industrial areas.