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## **Estimate of the Strong and Uniform Magnetic Field Generated by Face-to-Face HTS Bulk Magnet System**

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A unique experimental attempt aiming to obtain the uniform magnetic field space which is available for NMR/MRI equipments has been carried out with use of the HTS bulk magnets. The magnetic poles were activated as N 1.8 T and S 1.4 T at 30 K by the pulsed magnetic fields up to 7 T, and settled face-to-face with the gap less than 70 mm. Since the magnetic field yielding at the surface of the HTS magnet gives us the strongest magnetic flux density just at the center of the surface, which we call as "cone-shape" distribution, the data become weak and uniform with increasing the gap. The uniformity of the magnetic field required for detecting the NMR signals was shown as 1,500 ppm at more than 0.3 T in the 4 mm<sup>2</sup> cross sectional plane. In this condition, highest uniformity of 3,500 ppm at 0.57 T was obtained in the 60 mm gap. Then we attached a ferromagnetic iron plate to a magnetic pole surface to transform the magnetic field distribution to "M-shape", in which the peak was suppressed lower than those around it. The best uniformity of 358 ppm at 1.11 T was obtained at 9 mm distant from the iron plate surface in the gap 30 mm, which is available to detect NMR signals. It is stated that the M-shape magnetic field distribution was compensated by the counter magnetic pole with cone-shape field, which resulted in the uniform magnetic field plane.

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