Erratum to Three Papers on the β-Pyrochlore Oxide Superconductors

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The magnitude of magnetic fields given in the three papers[1-3] that report on the superconductivity of the β-pyrochlore oxides is incorrect due to a fatal error in our experimental equipment (Physical Property Measurement System (PPMS), Quantum Design). Recently, we noticed that the magnet controller of the PPMS had supplied to the superconducting magnet only 58% currents as much as expected. Thus, all the field values given in the previous papers[1-3] should be reduced by a factor of 0.58: the maximum field of 14 T is actually about 8 T, for instance. After the recovery of the magnet controller we have measured the field dependence of superconducting transition temperature T_c on a single crystal of KOs_2O_6, which is in good agreement with the previous data when it is reduced by this factor. Figure 1 shows a revised magnetic field versus temperature phase diagram for KOs_2O_6, which should replace Fig. 4 of reference 3. Note that the slopes of two upper critical field H_{c2} curves are nearly equal between the new data (red cross) and the previous one after the correction (blue circle).

On $RbOs_2O_6$ the H_{c2} value estimated at $T = 0$ K[1] should be reduced to about 10 T, which was determined from the field dependence of T_c defined as a midpoint of a resistive transition. On the other hand, a much smaller value of 6 T was reported by Bruhwilder *et al*. on the basis of their specific heat measurements.[4] Thus, there still remains inconsistency on the H_{c2} value of $RbOs_2O_6$. Reexamination on this issue will be carried out and reported elsewhere. Neither discussions nor conclusions given in the three papers are altered except for the magnitude of magnetic fields.

References

1) S. Yonezawa *et al*. J. Phys. Soc. Jpn. **73** (2004) 819.
2) Z. Hiroi *et al*. J. Phys. Soc. Jpn. **74** (2005) 1255.
3) Z. Hiroi *et al*. J. Phys. Soc. Jpn. **74** (2005) 1682.
4) M. Bruhwilder *et al*. Phys. Rev. B **70** (2004) 020503R.

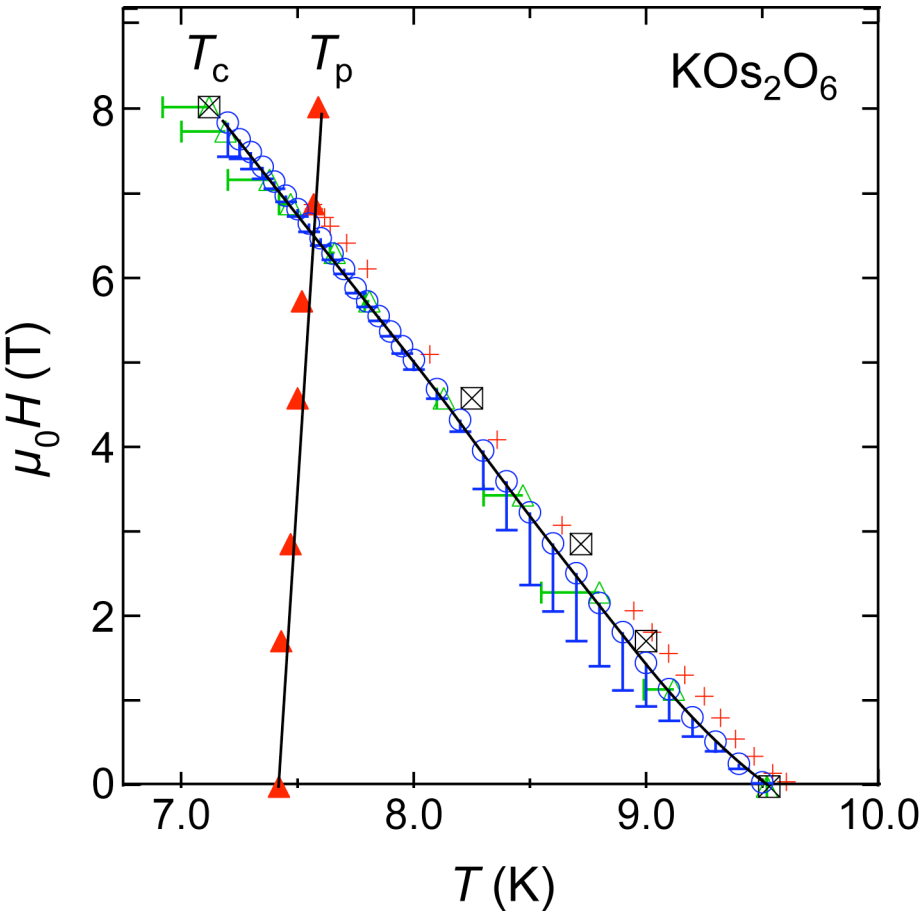

Fig. 1. Revised magnetic field versus temperature phase diagram for KOs_2O_6, which should replace Fig. 4 of reference 3. Open circles, triangles, and squares are the H_{c2} values determined by resistivity, specific heat, and magnetization measurements, respectively.[3)] Red crosses represent new data obtained by resistivity measurements on another single crystal. Bars from the data marks represent the extension of the superconducting transition. Solid triangles indicate the second peak temperatures. Solid lines serve as visual guides.