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Long-Range Magnetic Ordering in Pyrochlore Iridate $Eu_2Ir_2O_7$ S. ZHAO, J.M. MACKIE, D.E. MACLAUGHLIN, U. Calif., Riverside, O.O. BERNAL, Calif. State U., Los Angeles, Y. OHTA, S. NAKATSUJI, ISSP, Kashiwa, Japan —
In the pyrochlore iridate $Eu_2Ir_2O_7$ [1, 2] Eu^{3+} is nonmagnetic ($L = S$, $J = 0$) and $S(Ir^{4+}) = 1/2$ [1], so that it is a rare example of a frustrated $S = 1/2$ pyrochlore. Spin-glass-like behavior at the metal-insulator transition (MIT) and no magnetic ordering down to 0.3 K have been reported for this compound [2, 3]. We discuss μSR measurements on $Eu_2Ir_2O_7$ polycrystalline samples that yield strong evidence for long-range magnetic ordering. We observe well-defined muon spin precession frequencies below $T_M \approx 120$ K, consistent with the MIT temperature [2] but indicating long-range ordering instead of a spin-glass like transition. Significant dynamic muon spin relaxation persists to low temperatures, as is often the case in frustrated antiferromagnets.
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