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^{31}P-NMR studies of $PrRu_4P_{12}$

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We report ^{31}P NMR results in the filled skutterudite $PrRu_4P_{12}$. $PrRu_4P_{12}$ exhibits metal-insulator transition and structural phase transition at 63K.[1] In order to confirm these phenomenons, we measured ^{31}P NMR with the external field H of 7T parallel to [010].

Below 60K, each of three lines above 60K splits into two lines. This result suggests crystal structures change into lower symmetry due to structural phase transition. In addition, hyperfine coupling constant changes significantly below 60K due to metal-insulator transition.

We observed two distinct sites, which are strongly magnetic sites and weakly magnetic sites. For these sites, we measured the relaxation rate. Figure1 shows the relaxation rate of two sites. The relaxaton rate of strongly magnetic sites is larger than that of weakly magneticsite.

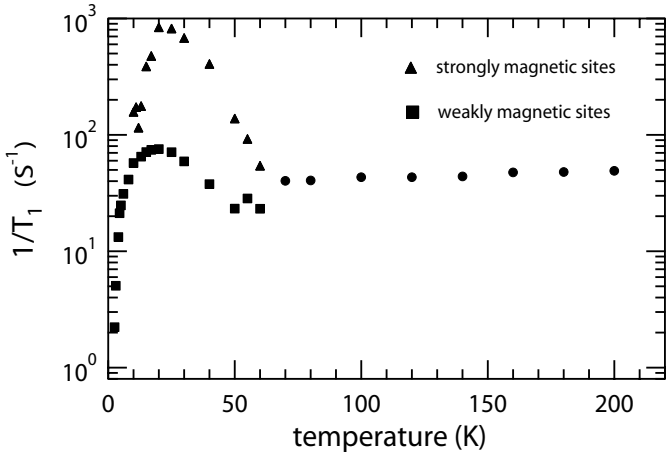

Figure 1: Temperature dependence of the spin-lattice rate in $PrRu_4P_{12}$

[1] C.Sekine *et al.*,Phys.Rev.Lett. **79** (1997) 3218.