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Angle-resolved NMR in single crystal UBe_{13} : the normal state

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The heavy-electron superconductor UBe_{13} has been studied extensively in various experimental methods so far, and the possibility of a spin triplet superconducting state has been suggested. In the superconducting state, however, the nuclear magnetic resonance measurements have been performed only for powder sample. In order to study more precisely, Angle-resolved NMR measurements were carried out for single crystal UBe_{13}.

We measured ^{9}Be NMR spectra as functions of rotation angle, and temperature dependence of Knight shifts for both H//[111] and [100] in the normal state. For H//[100], we observed ^{9}Be NMR spectra consisted of ten lines due to two inequivalent Be site, Be^{I} and Be^{II}, because of the EFG. Here, there exists three different Be^{II} site, $(Be^{\mathrm{II}})_A$,$(Be^{\mathrm{II}})_B$ and $(Be^{\mathrm{II}})_C$, under the magnetic field. The simulated angular dependence of resonance field well reproduces the experimental results (Fig. 1). The quadrupole parameters are found to be $\nu_Q = 83.7kHz$ and $\eta = 0.2$. We also determined the hyperfine coupling constants. These results are compared to the previous results reported W. G. Clark et al. [1] and the values in band calculation by H. Harima. Details will be presented at poster.

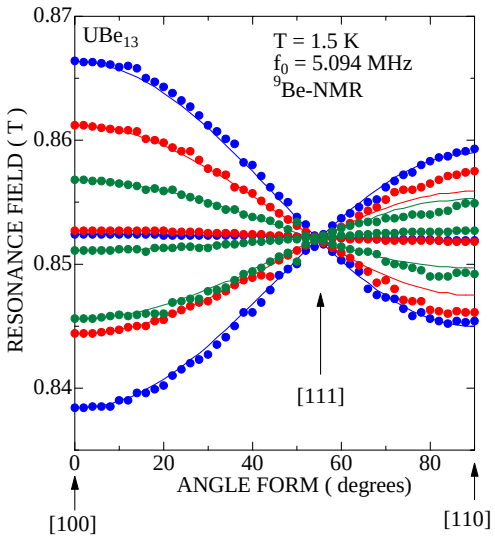

Figure 1: The resonance fields as functions of rotation angle (circles) and the simulation (lines) in T = 1.5 K.

[1] W. G. Clark et al., J. Mag. Mag.Mat. 63-64 (1987) 396 .