ＦｅＲｈ合金に圧延などによって応力を加えると、圧延前に反強磁性である室素温度においても強磁性が出現した。また、Ｘ線回折の結果圧延により新しい相が誘起されていることがわかった。しかしながら、この新しい相についてはその結晶構造などはまだ不明であり、またこの新相がＦｅＲｈ合金の反強磁性-強磁性相転移にどのような影響を与えているかについては明らかにできなかった。

20. VALENCE FLUCTUATION IN $YbTCu_4$(T＝In, Ag, Au and Pd)
価数揺動系 $YbTCu_4$(T＝In, Ag, Au, Pd) の磁性

中 島 和 則

The Yb-based heavy-electron compounds $YbTCu_4$ (T =In, Ag, Au and Pd) with the C15b-type crystal structure and isostructural reference compounds $LuTCu_4$ have been systematically investigated by Cu nuclear quadrupole resonance (NQR) technique. Analyses of the NQR spectra, resonance frequencies and spin-lattice relaxation rate, $1/T_1$, proved microscopically the first-order valence transition from a local moment state with stable Yb^{3+} to the Fermi liquid state at T_V = 40 ～ 50 K in $YbInCu_4$. The 4f spin relaxation rate of $YbAgCu_4$, deduced from T_1 shows the typical temperature dependence for the dense Kondo system, i.e., makes a minimum around (110 ± 20) K, which is considered to be the characteristic temperature of the system. The observations of both an abrupt decrease of $1/T_1$ at around 0.9 K and an additional broadening of the spectrum below the temperature proved the presence of the magnetic ordering in $YbAuCu_4$, from a microscopic viewpoint. We discuss the origin of these anomalous magnetic properties of the system associated by the instability of 4f electrons of Yb atom, by focusing our attention on the variation of Yb valence fluctuation depending on the T-elements.