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Evolution of the Hall effect in $CeCoIn_5$; non-Fermi to Fermi liquid crossover YASUYUKI NAKAJIMA, KOICHI IZAWA, ISSP Univ. of Tokyo, YUJI MATSUDA, Kyoto Univ., HIROAKI SHISHIDO, RIKIO SETTAI, YOSHICHIKA ONUKI, Osaka Univ., HIROSHI KONTANI, Nagoya Univ., MASATO HEDO, YOSHIYA UWATOKO, ISSP Univ. of Tokyo, TAKEHIKO MATSUMOTO, NIMS
— Heavy fermion superconductor $CeCoIn_5$ (T_c=2.3K) is located in the vicinity of the antiferromagnetic quantum critical point (QCP). At ambient pressure, the transport properties show non-Fermi liquid behavior, for example, the resistivity $\rho \propto T$. With applying pressure, non-Fermi liquid behavior is suppressed and Fermi liquid behavior recovers. To investigate the electronic transport properties in non-Fermi and Fermi liquid regions, we measured the pressure dependence of the normal-state Hall effect of $CeCoIn_5$ up to 2.51 GPa. At ambient pressure, the Hall coefficient varies as $R_H \propto T^{-1}$. With increasing pressure, R_H approaches T-independent value which is expected for conventional Fermi liquid metals. These results indicate that T^{-1}- dependence of R_H is a new hallmark of electronic transport properties in the presence of strong antiferromagnetic spin fluctuation near a QCP.

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