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Non-Fermi Liquid Transport Properties in Phosphorous Substituted Iron-Arsenides SHIGERU KASAHARA, TAKASADA SHIBAUCHI, KENICHIRO HASHIMOTO, Kyoto University, MINORU YAMASHITA, HIROAKI SHISHIDO, RYUJI OKAZAKI, HIROAKI IKEDA, TAKAHITO TERASHIMA, YUJI MATSUDA, Kyoto University — The anomalous normal-state charge transport property is studied in high-quality single crystals of BaFe2($As_{1-x}P_x$)$_2$. By substituting isoelectronic P for As, the spin-density-wave (SDW) state is suppressed and the dome-shaped superconducting phase (T_c $\sim$ 31 K) appears. Near the SDW end point (x $\sim$ 0.3), we observe striking linear temperature (T) dependence of resistivity in a wide T-range, and remarkable low-T enhancement of Hall coefficient magnitude from the carrier number estimates. We also find that the magnetoresistance apparently violates the Kohler's rule and is well scaled by the Hall angle. These non-Fermi liquid transport anomalies cannot be attributed to the simple multiband effects. These results capture universal features of correlated electron systems in the presence of strong antiferromagnetic fluctuations.
[1] S. Kasahara *et al.*, arXiv:0905.4427.

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