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Electronic properties of single crystalline $UNi_{0.39}Rh_{0.61}Al$ FARZANA NASREEN, New Mexico State University, SAMI EL KHATIB, University of Minesota-Twin City, ALEXANDER ANDREEV, Institute of Physics ASCR , Czech Republic, ALEX LACERDA, Pulse Field Facility, NHMFL, LANL, NM, HEINRICH NAKOTTE, New Mexico State University, NEW MEXICO STATE UNIVERSITY TEAM, UNIVERSITY OF MINNESOTA-TWIN CITY TEAM, INSTITUTE OF PHYSICS ASCR , CZECH REPUBLIC TEAM, PULSE FIELD FACILITY, NHMFL, LANL, NM TEAM — U(Ni,Rh)Al alloys crystallize in the hexagonal ZrNiAl structure. Here, we report on measurements on a single-crystalline member of this series, namely $UNi_{0.39}Rh_{0.61}Al$. Similar to other members of this series, this compound exhibits highly anisotropic properties with the easy magnetization direction along the *c*-axis. We report in the results of electrical resistance, magnetoresistance and thermal expansion as a function of temperature (2-300 K) and applied magnetic field (0-18 T). The results provide strong evidence for antiferromagnetic ordering at $T_N \leq 15$ K followed by a ferromagnetic transition around 7 K. A magnetic B-T phase diagram for $UNi_{0.39}Rh_{0.61}Al$ is proposed.

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