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Thermal and electrical transport properties of $\text{UCu}_{4+x}\text{Al}_{8-x}$
FARZANA NASREEN, New Mexico State University, MILTON TORIKACHVILLI,
San Diego State University, KARUNAKAR KOTHAPALLI, New Mexico State Uni-
versity, VIVIEN ZAPF, NHMFL Pulse Field Facility-LANL, HEINZ NAKOTTE,
New Mexico State University — The $\text{UCu}_{4+x}\text{Al}_{8-x}$ family crystallizes in the tetrag-
onal ThMn_{12} - type structure in the range from $0.1 \leq x \leq 1.95$. It has been reported
that the Cu-poor compounds show antiferromagnetic long-range order, followed by
a transition at $x=1.15$ to a heavy fermion behavior. We report on the results of
thermal conductivity and the Seebeck coefficient as a function of temperature (1.8-
300K). Thermal conductivity data are consistent with previously published electrical
resistivity data. The Seebeck coefficient measurements, S , confirm the peaks at T_N
for the antiferromagnetic compounds. We also measured electrical resistivity as func-
tion of very low temperature from 75mK to 4K and in magnetic field up to 6Tesla
for UCu_6Al_2 , $\text{UCu}_{5.75}\text{Al}_{6.25}$, $\text{UCu}_{5.5}\text{Al}_{6.5}$ and $\text{UCu}_{5.25}\text{Al}_{6.75}$. $\text{UCu}_{5.75}\text{Al}_{6.25}$ which
was reported as non-Fermi liquid (NFL) compound shows quantum critical point
induced by magnetic field. These results provide some insight about the underlying
mechanisms to the apparent NFL behavior in $\text{UCu}_{5.75}\text{Al}_{6.25}$ compound.

Farzana Nasreen
New Mexico State University

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