

Abstract Submitted
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Search **for**
Magnetic Order in Superconducting $\text{RuSr}_2\text{Eu}_{1.2}\text{Ce}_{0.8}\text{Cu}_2\text{O}_{10}$ J. W. LYNN,
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diffraction, polarized neutron transmission, and small angle neutron scattering have
been used to investigate the nature of the magnetic order in the titled compound.
The sample was made with the Eu-153 (98.8%) isotope to reduce the high neutron
absorption for this element. At low T a single magnetic peak is clearly observed.
A sharp spin reorientation transition (SRT) is observed around 35 K, close to the
superconducting transition temperature (T_c 40K). Between the SRT and the Neel
temperature of 59 K, additional magnetic reflections are observed. However, none
of these can be simply indexed on the chemical unit cell, either as commensurate
peaks or simple incommensurate magnetism, and the paucity of reflections at low T
compels the conclusion that these arise from an impurity phase. X-ray and neutron
diffraction both show that the sample does not appear to contain significant impurity
phases. However, the impurity peaks exhibit strong preferred orientation, while the
primary phase does not. We have been unable to observe any magnetic order that
can be identified with the ruthenate-cuprate system. Additional field-dependent
results will be discussed.

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