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Brief Reports

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Magnetic and crystallographic properties of $Fe_xCu_{1-x}Rh_2Se_4$

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$Fe_xCu_{1-x}Rh_2Se_4$ is found to crystallize with a spinel structure in the composition range of $0 \leq x \leq 0.5$, and the lattice parameter a increases linearly with x. Mössbauer measurements show that the charge states of the iron ions are ferric, and neither magnetic hyperfine nor quadrupole splittings exist down to liquid-nitrogen temperature. Measurements of the temperature dependence of the magnetic susceptibility reveal that the superexchange interactions on the tetrahedral sites are antiferromagnetic and the Curie constants are much smaller than the spin-only values.