

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Distinct magnetic regimes through site-selective atom substitution in the frustrated quantum antiferromagnet $\text{Cs}_2\text{CuCl}_{4-x}\text{Br}_x$
KATERYNA FOYEVTSOVA, HARALD O. JESCHKE, Institut fuer Theoretische Physik, Goethe Universitaet Frankfurt, 60438 Frankfurt, Germany, P.T. CONG, B. WOLF, M. DE SOUZA, N. KRUEGER, A.A. HAGHIGHIRAD, F. RITTER, W. ASSMUS, M. LANG, Physikalisches Institut, Goethe Universitaet Frankfurt, 60438 Frankfurt, Germany, ROSER VALENTI, Institut fuer Theoretische Physik, Goethe Universitaet Frankfurt, 60438 Frankfurt, Germany — A good realization of a spatially anisotropic spin 1/2 triangular lattice is provided by the isostructural layered compounds Cs_2CuCl_4 and Cs_2CuBr_4 . In this talk, we shall present electronic structure calculations and magnetic susceptibility measurements[1] for the mixed systems $\text{Cs}_2\text{CuCl}_{4-x}\text{Br}_x$. We shall discuss the existence of three distinct concentration regimes which are separated by critical concentrations $x_{c1} = 1$ and $x_{c2} = 2$. The role of frustration effects at the critical concentrations will be highlighted.

[1] Cong et al. Phys. Rev. B 83, 064425 (2011)

Roser Valenti
Institut fuer Theoretische Physik, Goethe Universitaet Frankfurt,
60438 Frankfurt, Germany

Date submitted: 28 Nov 2011

Electronic form version 1.4