



Contribution ID: 97

Type: Talk

【127】 Correlated decay of the triplet excitations in the frustrated quantum magnet $SrCu_2(BO_3)_2$

Thursday 24 August 2017 15:45 (15 minutes)

We report results on the unconventional finite-temperature properties of the localized singlet-triplet excitations in the 2D frustrated magnet $SrCu_2(BO_3)_2$. Performing inelastic neutron scattering, singlet-triplet modes were separated in energy with an applied magnetic field, so that their damping could be studied independently. The Q -dependence of the damping mechanism was determined by analysis of the anomalous lineshapes measured at 6.3K, using the two-components damping mechanism proposed in a correlated decay model. Each excited triplet appears equivalently distributed in space, while the applied field creates different thermal populations for $S^z = 0, \pm 1$ modes. While the Q -dependence of the damping is equivalent for each mode, we show that triplets undergo faster damping close to (π, π) .

Author: LANÇON, Diane (PSI - Paul Scherrer Institut)

Co-authors: MENA, Mattia (University College London, LCN, London, UK); RUEEGG, Christian (Paul Scherrer Institute); Dr FREEMAN, Paul (University of Central Lancashire, Jeremiah Horrocks Institute, Preston, UK); Dr GUIDI, Tatiana (Isis Facility, Rutherford Appleton Laboratory, Chilton, UK); Dr BEWLEY, Rob (Isis Facility, Rutherford Appleton Laboratory, Chilton, UK); Prof. RØNNOW, Henrik (Ecole Polytechnique Federale de Lausanne, Laboratory for Quantum Magnetism, Lausanne, Switzerland)

Presenter: LANÇON, Diane (PSI - Paul Scherrer Institut)

Session Classification: Condensed Matter Physics (incl. NESY)

Track Classification: Condensed Matter Physics (incl. NESY)