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2D Heisenberg Triangular Antiferromagnet in $Ba_3CoSb_2O_9$ ALUN BIFFIN, Laboratory for Neutron Scattering, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland, FRANZ DEMMEL, HELEN WALKER, ISIS Facility, Didcot, Oxfordshire, OX11 0QX, U.K., MICHAEL HAYWARD, Department ofChemistry, Inorganic Chemistry Laboratory, University of Oxford, South Parks Road, Oxford OX1 3QR, United Kingdom, RADU COLDEA, Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, U.K. — We present inelastic neutron scattering (INS) experiments on the triangular antiferromagnet (TAF) $Ba_3CoSb_2O_9$. High energy INS measurements allowed the crystal field levels of Co^{2+} ions to be resolved, and subsequently the terms relevant to its single ion Hamiltonian to be derived with the conclusion that the ions have a $J_{eff} = 1/2$ doublet as their groundstate with relatively weak local trigonal distortion of CoO_6 octahedra. The result is a system which is a rare realisation of the canonical spin 1/2 Heisenberg TAF. Following this, low energy, high-resolution INS experiments have been performed which reveal the spin wave excitations emanating from the 120° ordered phase below $T_N = 3.8$K. However, as will be seen, linear spin wave calculations are not sufficient to describe all the features of the data, and these anomalies hint at quantum dynamics beyond linear spin wave theory within this realisation of the canonical S=1/2 TAF system.

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