Session 26bC

The field-induced soliton phase of $CuGeO_3$ 26bC1

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The quasi 1D S=1/2 antiferromagnet $CuGeO_3$ undergoes a spin–Peierls transition to a dimerised singlet quantum ground state, with S=1/2 carrying domain walls — solitons — as the elementary excitations. Applying a large magnetic field, the solitons can be condensed into the ground state, forming a static incommensurate soliton lattice, which has been investigated by neutron scattering. The soliton structure was found to be in good accordance to field theoretical calculations, while few theoretical predicitons exist for the excitation spectrum. We have discovered three modes in total, which show behaviour indicative of considerable dynamic structural components.

From Stripe Solid to Stripe Liquid in Doped Antiferromagnets 26bC2

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It is well established that doped 2D antiferromagnets such as layered nickelates and certain cuprates can exhibit an ordered phase in which charge carriers are segregated to periodically-spaced domain walls separating antiferromagnetic domains. The charge-stripe order in strontium-doped nickelates can be imaged by electron diffraction. Recent neutron scattering studies indicate that the stripe solid can melt into a stripe liquid in which charge stripes are slowly fluctuating. These results, and their implications for charge transport, will be discussed.

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26bC3 **Novel stripe-type charge ordering in the metallic A-type antiferromagnet $Pr_{0.5}Sr_{0.5}MnO_3$**

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A single crystal of $Pr_{0.5}Sr_{0.5}MnO_3$, which exhibits a collossal magnetoresistance phenomenon in its A-type antiferromagnetic state, was investigated by a neutron diffraction study. This material exhibits a stripe-type charge ordering with a wave vector $q \sim (0, 0, 0.3)$, which controls the electron conductivity. This charge ordering is fundamentally different from a widely observed checkerboard (CE-type) charger ordering, and is specific to the conductive A-type AFM state.

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