

Abstract Submitted  
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**Dipolar glass and strong magneto-electric coupling within a purely organic system** ADAM BERLIE, ISIS Neutron and Muon Source, Science and Technology Facilities Council, UK, IAN TERRY, Department of Physics, Durham University, UK, YUN LIU, Research School of Chemistry, Australian National University, Australia, MAREK SZABLEWSKI, Department of Physics, Durham University, UK — There is much interest in the search for novel materials that show ferroelectric as well as magneto-electric coupling, such as that observed in multiferroics. Within organic based materials the electronic polarisation can come from a charge distribution across a molecule or molecules and so one must search for systems that have a electronic (and magnetic) dipole that is intrinsic. One such material is tetraethylammonium bis-7,7,8,8-tetracyanoquinodimethane (TEA(TCNQ)<sub>2</sub>) which is a charge transfer system where there is a single electron delocalised across a TCNQ dimer. We show that dielectric measurements yield anomalies at the Peierls structural distortion and on going through the spin-Peierls transition. In both cases the electric response is glassy and at low temperature the corresponding magnetic measurements evidence the strong magneto-electric coupling within the material showing analogies to spin glass systems.

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