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Dielectric anomalies in $CoCr_2O_4$ G. LAWES, Wayne State University, B. MELOT, K. PAGE, C. EDERER, UCSB, M.A. HAYWARD, Oxford, TH. PROFFEN, LANL, R. SESHADRI, UCSB — We investigate the magnetic,dielectric, and thermodynamic properties of $CoCr_2O_4$ polycrystalline samples. AC susceptibility and specific heat measurements show the existence of two distinct magnetic transitions in this material. Neutron scattering experiments confirm a ferrimagnetic ordering transition at T_c=95 K and a transition to a spiral magnetic phase below T_N 25 K. We observe a significant dielectric anomaly coincident with the onset to long-range spiral magnetic order, and a separate feature with significant thermal hysteresis above T=50 K. We associate this higher temperature dielectric anomaly with short-range spiral magnetic order, and discuss these results in the context of utilizing magnetodielectric couplings to capacitively probe short range magnetic structures.

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