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**Spin wave dispersion in the helical spin ordered system $SrFeO_3$ and $CaFeO_3$**[1] C. ULRICH, G. KHALIULLIN, V. DAMLJANOVIC, Max-Planck Institute FKF, Stuttgart, Germany, M. REEHUIS, A. MALJUK, HMI, Berlin, Germany, A. IVANOV, K. SCHMALZL, ILL, Grenoble, France, CH. NIEDERMAYER, PSI, Villigen, Switzerland, K. HRADIL, FRM II, Munich, Germany, B. KEIMER, Max-Planck Institute FKF, Stuttgart, Germany — One of the most interesting problems in condensed matter physics is the metal-insulator (MI) transition driven by strong electron correlations. The cubic perovskites $SrFeO_3$ and $CaFeO_3$ are isoelectronic to the manganite system ($t_{2g}^3$ $e_g^1$) and exhibit colossal magneto resistance effects. But in contrast, the ferrates show a helical instead of a collinear spin structure. Furthermore, perfectly cubic $SrFeO_3$ shows no charge order and is metallic whereas pseudocubic $CaFeO_3$ shows a MI-transition at the charge ordering transition of 290 K. Therefore, both compounds are right at the borderline between itinerant and strongly correlated systems. We have determined the static and dynamic spin properties by neutron scattering. The extracted parameters in the spin Hamiltonian are a big step towards the understanding of the mechanisms behind the helical spin order and the charge order in the ferrates.

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