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E8 spectrum and the finite temperature spin dynamics in the transverse field Ising chain with a small longitudinal field JIANDA WU, Rice University, MARTON KORMOS, Dipartimento di Fisica dell'Universit a di Pisa and INFN, Pisa, Italy, QIMIAO SI, Rice University — When the transverse field Ising chain at its quantum critical point is subjected to a small longitudinal field, the perturbed conformal field theory led to a field theory with an exotic E8 symmetry [1]. Recent neutron scattering experiments have provided evidence for the lightest two particles in this E8 model in the quasi-1D Ising ferromagnet CoNb2O6 [2]. While the zero temperature dynamics of the model is well known, its finite-temperature counterpart has not yet been systematically studied. We study the low-frequency dynamical structure factor at finite temperatures using the form-factor method. We show that the dominant contribution to the dynamical structure factor comes from the scattering between two lightest particles, and discuss the implications of our results for the NMR relaxation rate. [1]A.B.Zamolodchikov, Int. J. Mod. Phys. A4, 4235(1989) [2]R. Coldea et al, Science 327, 177 (2010)

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