

Abstract Submitted
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Dynamical correlation functions in spin-1/2 ladders under a magnetic field PIERRE BOUILLOT, University of Geneva, Switzerland, CORINNA KOLLATH, CNRS, Ecole Polytechnique, France, LAUCHLI ANDREAS, Max Planck Institut, Germany, MIKHAIL ZVONAREV, CNRS, LPTMS, Universite Paris-Sud, France, THIERRY GIAMARCHI, University of Geneva, Switzerland — Our work is dedicated to magnetic properties of spin-1/2 ladders. These systems have recently generated a great interest due to the new experimental realization of $(Hpip)_2CuBr_4$. During the last few years, this compound has been the focus of numerous measurements like specific heat, magnetostriction, NMR and neutron scattering. We theoretically investigate these systems and determine the zero temperature dynamical correlations using time-dependent density matrix renormalization group. This numerical approach allows us to fully explore their spectrum for a broad range of magnetic fields. We are able to compute the high energy components that are not accessible by analytical methods. The calculated correlations are directly related to the neutron scattering cross section that we can predict with very good precision.

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