Abstract Submitted
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The spin Drude weight of the XXZ chain[1] ANDREW URICHUK, University of Manitoba / Bergische Universitaet Wuppertal — New techniques in the context of quantum integrable systems have raised exciting possibilities for the study of transport phenomenon. The spin Drude weight, a portion of the spin current that survives to infinite times, at zero magnetic field in a 1D XXZ Heisenberg spin chain in the paramagnetic regime has had a long and contentious history, however it seems to be amenable to these new techniques. Previous results have indicated that the spin Drude weight is a nowhere continuous (or fractal) function of the anisotropy, however this original derivation has some problematic steps. By exhausting the Mazur bound we are able to determine the value of the spin Drude weight and avoid some of the problematic steps of the original derivation, however our result was found to be equivalent to the previously obtained formula. This equivalence supports the fractal dependence on anisotropy of the spin Drude weight. We consider the consequences this has for spin transport and how this might be realized in an experimental context.

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