<u>M</u> A T H E M A T I C A L   <u>P</u> H Y S I C S   <u>S</u> E M I N A R

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Conductivity In The XXZ Heisenberg Chain With Next To Nearest Neighbor Interaction

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Thursday, April 25, 2013 - 12:00pm

Abstract

We consider a spin chain given by the XXZ model with a weak next to nearest neighbor perturbation which breaks its exact integrability. We prove that such system has an ideal metallic behavior (infinite conductivity), by rigorously establishing strict lower bounds on the zero temperature Drude weight which are strictly positive.