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Dynamics of spin impurities in a system with a temperature gradient (ONLINE presentation)

vendredi 17 septembre 2021 14:00 (1 heure)

We study a spin impurity in a one-dimensional strongly interacting system. Our focus is on a system with a temperature gradient, which has not been studied before. First of all, we introduce a mathematical framework suitable for our study. To this end, we connect the finite-temperature dynamics of a strongly interacting one-dimensional system to a Heisenberg spin chain whose couplings are defined by the local temperature. This spin-chain mapping gives insight into the dynamics of a spin impurity. In particular, it shows that the impurity moves towards the hot side of the system: A temperature gradient accelerates the impurity in one direction more than in the other, leading to an overall spin current [somewhat similar to the spin Seebeck effect]

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