

# Quenching the $XXZ$ spin chain: Quench action approach versus generalized Gibbs ensemble

Gabor Takacs<sup>\*</sup>

[takacsg@eik.bme.hu](mailto:takacsg@eik.bme.hu)

---

I present a comparison of the quench action approach and the predictions of the generalized Gibbs ensemble, with the result that while the quench action correctly captures the steady state after a quantum quench of the  $XXZ$  spin chain, the GGE does not give a correct description of local short-distance correlations. I also discuss the underlying reasons for the failure of the GGE and comment on the possible ways out.

---

<sup>\*</sup>Department of Theoretical Physics, Budapest University of Technology and Economics, 1111 Budapest, Budafoki ut 8, HUNGARY.