

Long-range interacting quantum systems

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The seminar is meant to present a bird's eye view on the field of long-range interacting quantum systems. The talk will start with a brief overview of critical phenomena in systems with power law interactions $1/r^\alpha$ showing how the equilibrium scaling depends of the power-law scaling α . Then, I will describe the peculiar out-of-equilibrium scaling dynamics observed in "strong" long-range systems with $\alpha < d$, both for sudden and slow quenches. Finally, I will show how the study of long-range interacting systems is connected to the case of non-homogeneous disordered structures.

References

[1] N. D. Tobias Donner, T. Macrì, G. Pagano, S. Ruffo, A. Trombettoni, Long-range interacting quantum systems, Rev. Mod. Phys. In press (2023).