

Analogue simulators of spin models with trapped ions

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In this talk, I will give an introduction to quantum simulations with trapped ions and discuss the interactions available for coupling ions in a simulator. I will then focus on analogue simulators realizing spin models in trapped ions [1], present an investigation of non-equilibrium dynamics following a quantum quench [2], and discuss how to characterize states resulting from the action of an Ising Hamiltonian acting on an initial product state [3].

References

- [1] D. Porras, I. Cirac, PRL 92, 207901 (2004).
- [2] P. Jurcevic et al., Nature 511, 202 (2014).
- [3] B. Lanyon, C. Maier et al., arXiv: 1612.08000