



Physical Sciences Seminar

Slow dynamics in constrained many-body quantum systems

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A recent experiment performed in a 51-Rydberg atoms chain with nearest neighbours strong interactions (blockade regime), observed long-lived oscillations in the expectation value of local observables quenching from a Neel-ordered initial state. This fact seems to violate the common belief according to which the initial state should rapidly thermalize. In this talk I will present a new approach to tackle this problem, connecting it to epitome phenomena in high-energy physics. In particular, I will show how the Hamiltonian describing the atom chain can be exactly mapped to a $U(1)$ lattice gauge theory, namely $S=1/2$ -QLM. This fact enables us to interpret the observed long-lived oscillations as slow string dynamics and, furthermore, shows the possibility of performing large scale quantum simulations in lattice gauge theories with the state-of-the-art technology.

Wednesday, March 13, 2019 11:00am - 12:00pm

Big Seminar room Ground floor / Office Bldg West (I21.EG.101)



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