Nonthermal symmetry-broken states and nonequilibrium criticality in correlated lattice models

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We study the dynamics of correlated lattice systems, which are driven out of a symmetry-broken phase, using the nonequilibrium generalization of dynamical mean field theory [1]. Trapping in nonthermal ordered states is observed in strongly correlated antiferromagnetic insulators [2] and linked to the long thermalization time of doublons and holes. In the weak-coupling regime, we find clear evidence for a relaxation controlled by a nonthermal fixed point [3]. The universality of the latter concept is further illustrated with results for phonon-mediated superconductors [4] and excitonic insulators [5].

References

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