FACOLTÀ DI SCIENZE MATEMATICHE, FISICHE E NATURALI
DIPARTIMENTO DI MATEMATICA E FISICA "NICCOLÒ TARTAGLIA"
INTERNATIONAL DOCTORAL PROGRAM IN SCIENCE

Shaking Strongly Correlated Electrons

Introduce:
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Abstract:
We study the dynamics of the fermionic Hubbard model under a periodic modulation of the interaction around a finite positive value. Using nonequilibrium Dynamical Mean Field Theory we find, for moderate interactions, clear evidence of thermalization of local observables to a genuine infinite temperature state with no residual oscillations.
Quite differently, in the strongly correlated Mott regime, the system remains trapped in a quasi-stationary state which is synchronized with the drive and extremely long-lived. The nature of this Floquet pre-thermal state dramatically changes upon tuning the drive frequency. In particular, we show the existence of critical frequency at which the system rapidly thermalize despite the strong interactions, an example of a dynamical transition with drive-assisted thermalization.
Interestingly for drive frequencies above the critical one prethermalization emerges again, but the system effective thermalize to a negative temperature and a population inversion takes place. We provide the analytical understanding of these rich DMFT results using a Floquet Schrieffer-Wolff transformation.

Seminario

Lunedì 22 Gennaio 2018
Sala Riunioni, ore 12.00
Via dei Musei 41 - Brescia

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