

Abstract Submitted
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Title: Time-Dependent Mean Field Theory for Quench Dynamics in correlated electron systems MARCO SCHIRO¹, Princeton Center for Theoretical Science, Princeton University, MICHELE FABRIZIO, SISSA, International School for Advanced Studies — A simple and very flexible variational approach to the out-of-equilibrium quantum dynamics in strongly correlated electron systems is introduced through a time-dependent Gutzwiller wavefunction. As an application, we study the simple case of a sudden change of the interaction in the fermionic Hubbard model and find at the mean field level an extremely rich behaviour. In particular, a dynamical transition between small and large quantum quench regimes is found to occur at half-filling, in accordance with the analysis of Eckstein *et al.*, Phys. Rev. Lett. **103**, 056403 (2009), obtained by dynamical mean field theory, that turns into a crossover at any finite doping.

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