On a scale-invariant Fermi gas in a time-dependent harmonic potential SERGEJ MOROZ, University of Washington — We investigate a scale-invariant two-component Fermi gas in a time-dependent isotropic harmonic potential. The exact time evolution of density distribution in position space in any spatial dimension is obtained. Two experimentally relevant examples– an abrupt change and a periodic modulation of a trapping frequency are solved. Consequences for experiments with ultracold quantum gases such as the excitation of a tower of undamped breathing modes and the stabilization of an antitrapped system by an AC magnetic field are discussed. Small deviations from the scale invariance and isotropy of the confinement are also considered.

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