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Probing Strongly Interacting Fermi Gases in Homogeneous Potentials PARTH PATEL, ZHENJIE YAN, BISWAROOP MUKHERJEE, JULIAN STRUCK, MARTIN ZWIERLEIN, Massachusetts Inst of Tech-MIT — We have realized a homogeneous optical potential for quantum degenerate Fermionic atoms (^6Li), and characterized the flatness using in-situ tomography. This is an ideal testbed for a variety of bulk condensed matter systems. In addition, this trap can be converted to a hybrid potential, which is flat along two of the directions and harmonic along the third. This is an ideal trapping geometry to study the density response of a quantum gas to varying external potentials. Here we present our recent measurements on strongly interacting Fermions in homogeneous potentials.

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