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RF Spectroscopy on a Homogeneous Fermi Gas ZHENJIE YAN, BISWAROOP MUKHERJEE, PARTH PATEL, JULIAN STRUCK, MARTIN ZWIERLEIN, Massachusetts Inst of Tech-MIT — Over the last two decades RF spectroscopy has been established as an indispensable tool to probe a large variety of fundamental properties of strongly interacting Fermi gases. This ranges from measurement of the pairing gap over tan's contact to the quasi-particle weight of Fermi polarons. So far, most RF spectroscopy experiments have been performed in harmonic traps, resulting in an averaged response over different densities. We have realized an optical uniform potential for ultracold Fermi gases of ${}^6\text{Li}$ atoms, which allows us to avoid the usual problems connected to inhomogeneous systems. Here we present recent results on RF spectroscopy of these homogeneous samples with a high signal to noise ratio. In addition, we report progress on measuring the contact of a unitary Fermi gas across the normal to superfluid transition.

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