Equation of State of Fermi Polarons ZHENJIE YAN, BISWAROOP
MUKHERJEE, PARTH PATEL, RICHARD FLETCHER, JULIAN STRUCK,
MARTIN ZWIERLEIN, Massachusetts Institute of Technology — Fermi polarons
are spin impurities dressed by interactions with a fermionic bath: an extension of
the classic polaron problem where an electron is coupled to a sea of phonons. Here
we present thermodynamic measurements of strongly interacting Fermi gases in the
polaronic regime. We trap spin-imbalanced ^{6}Li gases in a hybrid potential that is
harmonic in one dimension and uniform in the other two, allowing us to extract
local thermodynamic quantities with high signal to noise. The density and com-
pressibility of the majority spin component are observed to deviate from the ideal
Fermi gas. In addition, we report progress towards the gradual undressing of the
Fermi polarons as the temperature is increased.

Zhenjie Yan
Massachusetts Institute of Technology