Specific heat and strong-coupling effects in the BCS-BEC crossover regime of an ultracold Fermi gas

P. van Wyk, H. Tajima, R. Hanai, and Y.Ohashi
Faculty of Science and Technology, Keio University

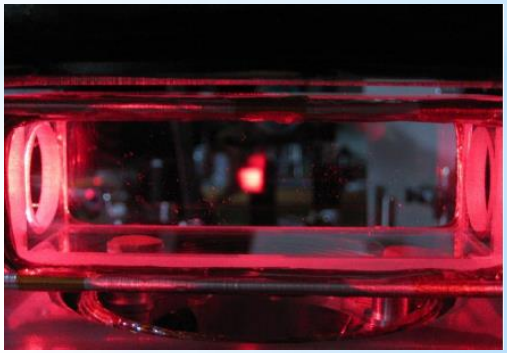
Quantum Correlations

Interacting Many Body Fermion System

Thermodynamics

Ideal System

Ultracold Fermi Gas



Clean System

Tunable Interaction

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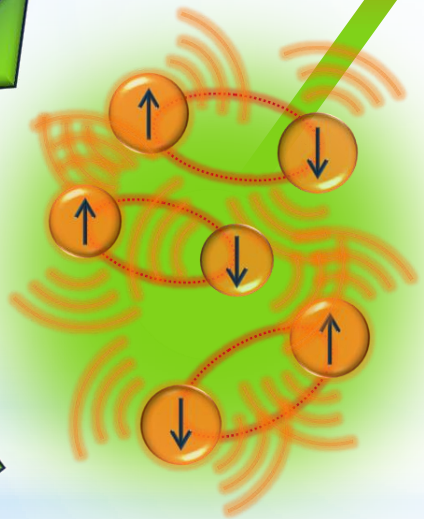
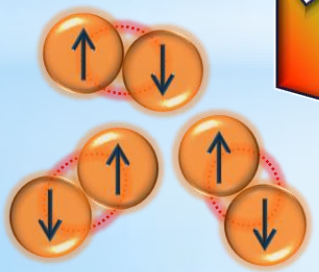
BCS-BEC Crossover

Weak Coupling
(BCS)

Unitary
Fermi Gas



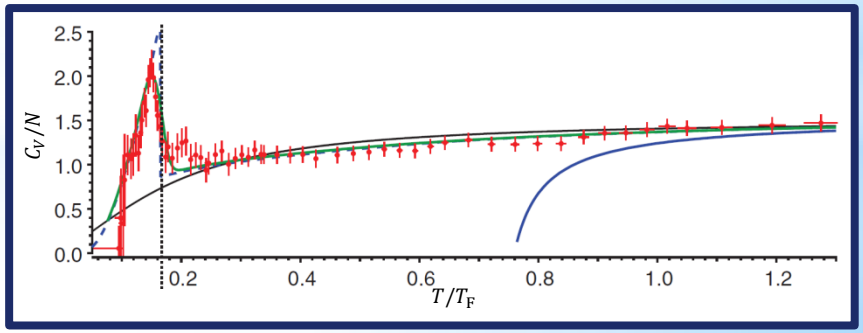


Strong Coupling
(BEC)

Strong Coupling Effects
"Pairing Fluctuations"

"Change in Entropy"
=
Specific Heat

Experiment at Unitarity



Mark J. H. Ku *et al.* Science 335, 563 (2012)

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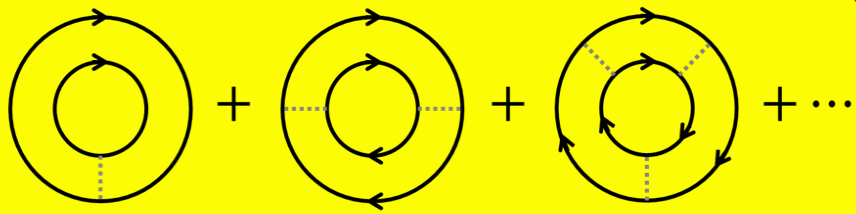
Strong coupling corrections to specific heat within a Gaussian fluctuation (NSR) level at T_c

$$\Omega_{\mathrm{NSR}} =$$  $$+\cdots$$