Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Rotating Ultracold Fermi Gases: Reduction in the Moment of Inertia Above the Superfluid Transition Temperature K. LEVIN, VIVEK MISHRA, DAN WULIN, James Franck Institute, University of Chicago — There has been considerable interest in the viscosity of ultracold Fermi gases which is found to be anomalously suppressed even in the normal phase. This suppression, believed to derive from pseudogap effects, is also associated with a reduction in the moment of inertia, as measured by the Duke group. In this talk we address the relationship between viscosity and the reduced moment of inertia. We emphasize the very strong relation of the latter to the anomalous normal state diamagnetism of the high temperature superconductors. We present a simple physical picture for the origin of these related phenomena. Our picture gains strong support from establishing sum rule compatibility and leads to testable predictions.

Vivek Mishra
James Franck Institute, University of Chicago

Date submitted: 19 Nov 2011 Electronic form version 1.4