

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**FFLO pairing correlations in a trapped quasi one-dimensional Fermi gas**<sup>1</sup> DOMINIQUE GAUTREAU, STEPHEN KUDLA, DANIEL SHEEHY, Department of Physics and Astronomy, Louisiana State University — Recent work has pursued the possibility of a Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) phase of imbalanced Fermi gases in one dimension, in which an imposed population imbalance between two species of interacting fermion leads to spatially-modulated local pairing correlations. While experiments at Rice (Liao et al, Nature 467, 567 (2010)) show consistency with the expected bulk phase diagram using the local density approximation, little is known about how the FFLO pairing correlations will be revealed experimentally. Using a simple variational wavefunction ansatz for the FFLO state of a trapped 1D gas, in which the population imbalance leads to an imbalance in pairing among harmonic oscillator states, we compute predicted experimental signatures of the FFLO phase in a trapped one-dimensional fermionic atomic gas.

<sup>1</sup>This work was supported by the National Science Foundation Grant No. DMR-1151717.

Daniel Sheehy  
Department of Physics and Astronomy, Louisiana State University

Date submitted: 15 Nov 2013

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