

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Spectral Functions of FFLO states in coupled chains**<sup>1</sup> NANDINI TRIVEDI, KARIM BOUADIM, YEN-LEE LOH, The Ohio State University, VALERY ROUSSEAU, Louisiana State University — Polarized Fermi gases hold the possibility of an exotic and fragile modulated superfluid known as a Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) state. Quasi-one-dimensional systems of ultracold fermions are the ideal place to look for FFLO physics. Using various methods [1] (including determinant quantum Monte Carlo, stochastic Green function, and Bogoliubov-de Gennes methods), we study the correlation functions and quantum dynamics of polarized Fermi gases in single chains and coupled chains. Our results indicate that fluctuating domain walls lead to spectral weight near the Fermi energy in the spin-resolved density of states, that are a signature of Andreev reflections and fluctuating bound states. We derive bounds for the optimal interchain coupling to maximize the critical temperature of the FFLO state, in order to aid detection of these FFLO states in cold atom experiments [2].

[1] Y.-L. Loh and N. Trivedi, Phys. Rev. Lett. **104**, 165302 (2010).

[2] Y-an. Liao et. al Nature **467**, 567-569 (2010).

<sup>1</sup>ARO, DARPA grant no. W911NF-08-1-0338, and Ohio Supercomputer Center

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Date submitted: 28 Dec 2010

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