

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Superconductivity in a model involving transverse gauge bosons¹

IPSITA MANDAL, SUDIP CHAKRAVARTY, SUK BUM CHUNG, University of California Los Angeles — It has been known for some time that a system of fermions interacting with transverse gauge bosons does not behave like a Fermi liquid and provides a bona fide model for a non-Fermi liquid. Here we study superconductivity in this model. Preliminary calculations show explicitly that a superconducting gap exists only for couplings greater than a threshold. It is hoped that a proper elucidation of this problem would lead to insights that may be useful in developing effective low energy theories of realistic physical problems, such as the normal state of high temperature superconductors, the state of half-filled quantum Hall systems, or the color superconductivity in the quark-gluon system, or even in the effects of disorder in a non-Fermi liquid system that could provide a new paradigm.

¹This work is being supported by NSF under Grant number DMR-1004520

Ipsita Mandal
University of California Los Angeles

Date submitted: 09 Nov 2012

Electronic form version 1.4