

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Electromagnetic response of time-reversal breaking metallic phases in two dimensions¹ VICTOR CHUA, WATHID ASSAWASUNTHONNET, EDUARDO FRADKIN, Univ of Illinois - Urbana — The electromagnetic response of models of nematic non Fermi-liquids previously proposed in Ref.[1] are re-examined using conventional many-body methods. Nematic phases of this model are described by two 2-component real vectors which express the isotropy breaking nematicity in two Fermi-surfaces. Of interest is the time-reversal symmetry breaking nematic phase with a non-vanishing unquantized spontaneous anomalous Hall effect at zero external magnetic fields, and has a geometrical description as a Berry phase. We compare and contrast our results with conventional response calculations with those predicted with the higher-dimensional bosonization method [2,3]. Finally we present preliminary results on an RG analysis of this system. [1] K Sun and E Fradkin, Phys. Rev. B 78, 245122 (2008). [2] HJ Kwon, A Houghton, and JB Marston, Phys. Rev. B 52, 8002 (1995) [3] MJ Lawler, DG Barci, V Fernandez, E Fradkin, L Oxman, Phys. Rev. B 73, 085101 (2006)

¹This work was supported by the Gordon and Betty Moore Foundation

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Date submitted: 04 Nov 2015

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