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Polarization Operator in a Theory of Massless Fermions with Superfluidity SAJIB BARMAN, VIVIAN INCERA, University of Texas at El Paso — A QCD inspired effective theory of fermions has been applied to study superfluidity. We calculate the polarization operator of a theory of fermions at finite density with fermion-fermion condensate. In this theory color degrees of freedom and external magnetic fields are absent. The diagram of the polarization operator has vertex with scalar fields and is called Yukawa vertex. We start from the full fermion propagator found in the model of massless fermions and used the Nambu-Jona-Lasinio model to calculate the polarization operator. Finally the influence of the medium in the polarization properties is discussed.

Sajib Barman
University of Texas at El Paso

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