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Magnetic response of the Extremely correlated electron liquid[1]
ARTI GARG, Department of Physics, University of California, 1156 High Street Santa Cruz, CA 95064, DANIEL HANSEN, B. SRIRAM SHASTRY — We study the magnetic susceptibility and Nuclear magnetic resonance (NMR) relaxation rates for the t-J model within the recently proposed theory of Extremely Correlated Quantum Liquid (ECQL) [1]. The basic theory of ECQL and its spectral functions are presented elsewhere [1-2]. This theory leads to a sequence of systematic conserving schemes that satisfy the constraint of rotation invariance and gauge invariance via the Nozieres relations and Ward identities. As a first example, we present the results of a non linear RPA type scheme valid near half filling. A characteristic feature of this scheme is that the bandwidth gets renormalized by a factor that is a function of static spin and charge correlations. The resulting dynamical magnetic susceptibilities and NMR relaxation rates are presented and compared with experiments on High Tc systems. [1] Extremely Correlated Quantum Liquids, B. Sriram Shastry Preprint (2009) and (APS March Meeting 2010). [2] Spectral functions of the Extremely correlated electron liquid, Daniel Hansen, Arti Garg, and B. Sriram Shastry (APS March meeting 2010).

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