Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Bethe -Salpeter Equation and Isotope Effect in Superconductivity YURIY MALOZOVSKY, Southeastern Louisiana University, J.D. FAN, JD Duz (USA)-CQU Institute for Superconductivity,Chongqing University, Chongqing, China and Southern University, Baton Rouge, Louisiana, USA — We evaluate the temperature of superconducting phase transition in terms of the Bethe-Salpeter equation for the many-body system. We consider the case when both electron-phonon interaction and strong Coulomb interaction coexist. To remove the artificial cutoff at high energy we solve the Bethe-Salpeter equation in terms of the two-particle vacuum scattering amplitude. We show that such an approach leads to the conclusion that the so-called Coulomb pseudopotential appears only due to artificial cutoff and does not exist at all in terms of the Bethe-Salpeter equation.

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Date submitted: 12 Nov 2004 Electronic form version 1.4