

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Excitonic pairing between nodal fermions WILLIAM SHIVELY,
DMITRI KHVESHCHENKO, Dept. Physics & Astronomy, University of North
Carolina at Chapel Hill — We discuss excitonic pairing in nodal fermion systems,
characterized by a vanishing quasiparticle density of states at the point-like Fermi
surface and a concomitant lack of screening for long-range interactions. We solve
the gap equation and obtain the free energy and critical values of the interaction
strength for a variety of algebraically interactions and power-law densities of states.
On the basis of this insight, we analyze possible phase transitions in this interesting
class of non-fermi-liquid systems.

William Shively
Dept. Physics & Astronomy, University of North Carolina at Chapel Hill

Date submitted: 07 Dec 2005

Electronic form version 1.4