Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Extension of dual-fermion formalism towards disordered systems
HANNA TERLETSKA, Louisiana State University, Brookhaven National Lab, SHUXIANG YANG, ZI YANG MENG , SANDEEP PATHAK, KA MING TAM, JUANA MORENO, MARK JARRELL, Louisiana State University — To study the correlation effects in disordered materials, we extend the recently developed dual fermion approach [1] to include systems with disorder. In particular, we consider the effect of nonlocal disorder-induced correlations in the non-interacting Anderson model. Within this method, such nonlocal effects are included in a systematic way as an expansion to the coherent potential approximation (CPA). The ability to properly treat the nonlocal correlations and provide non-local corrections to the CPA, is crucial for the description of the electron localization. In our analysis, we consider the density of sates and localization effects and compare them with the existing results. [1] A.N. Rubtsov, et. al., Phys. Rev. B 79, 045133 (2009).

Hanna Terletska
Louisiana State University, Brookhaven National Lab

Date submitted: 11 Nov 2011 Electronic form version 1.4