Abstract Submitted
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First principles many-body approach to electron gas PING SUN, Rutgers University, GABRIEL KOTLIAR, Rutgers University — We describe a first principles approach of constructing low energy, effective lattice model for the electron gas in a continuum of 2 and 3 spatial dimensions. The effects of the higher energy, unoccupied states are taken into account through virtue particle-hole excitations which screen the effective interactions at low energies. Using this effective model we obtain the correct order of magnitudes of the average inter- electron distance (R_s) at which the metal-insulator transition happens in 2d and 3d.

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