Problem Set 2

1) Consider the problem of electrons interacting with impurities with concentration n_i, assume that the interaction potential is weak and short range. Assume the system is in equilibrium, at a temperature T. a) Evaluate the following self energy functions:

Σ^t, $\Sigma^>$, $\Sigma^<$, Σ^A , Σ^R Σ^K

to second order in perturbation theory in the impurity potential.

Figure 1: Second Order and First Order Self Energies