Hartree - Fock method When dealing with a stationary Schrdinger equation, an analytical solution can only be found for simplified, specific problems such as the hydrogen atom. For more complex problems, the idea of an exact solution is discarded and approximate methods take the main role. One of main importance is the variational method. In it, a set of solutions restricted to a subspace of the Hilbert space is proposed, and then a solution which minimises the energy functional (eq:energy$_{f}unctional)isfoundwithinthesubspace.equationE\left[\psi\right]=$
$H\psi\psi eq:energy_{f}unctional$