In keeping with the fact that κ is of the order of 1 in the nuclear case, it is likely that mean field theory is applicable to the description of the nucleons in the ground state of the system. The marked variation of the binding energy per particle as a function of mass number $A = N + Z$ for specific values of N and Z (magic numbers), testifies to the fact that nucleons in the nucleus display, in states lying close to the Fermi energy, a long mean free path as compared with nuclear dimensions ($R \approx 1.2 A^{1/3}$ fm $\approx$ 6-7 fm).

The results discussed above, namely that $\kappa \ll 1$ implies localization, that is fixed relations between the constituents, and thus spontaneous symmetry breaking, while $\kappa \gtrsim 0.14$ implies delocalization and thus homogeneity is an example of the fact that while potential energy always prefer special arrangements, fluctuations, classical or quantal, favour symmetry.