The nuclear Cooper pair

Structure and Reactions

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In the atom, the nucleus provides the field in which negatively charged electrons ($-e$) move independently of each other in single-particle orbitals. The filling of these orbitals explains Mendeleev's periodic table. Thus the valence of the chemical elements as well as the particular stability of the noble gases associated with the closing of shells (2(He), 10(Ne), 18(Ar), 36(Kr), 54(Xe), 86(Ra)). The dimension of the atom is measured in angstroms (Å=10^{-8}cm), and typical energies in eV, the electron mass being $m_e \approx 0.511$ MeV (MeV=10^6eV).