A UNIFIED DESCRIPTION OF HIGH- AND LOW-T_c SUPERCONDUCTIVITY,
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It is shown that the BCS Hamiltonian can be straightforwardly derived from the second quantization formalism of the general fermion Hamiltonian under the condition of zero total momentum, $\mathbf{k} + \mathbf{k'} = 0$. A reinterpretation of the BCS Hamiltonian in the particle-hole channel leads to an understanding consistent with the positive Hubbard model in the Coulombic framework. Nevertheless, the BCS theory is never obsolete in describing superconductivity. Without the concept of Cooper's pairing, BCS theory remains valid in the Coulombic framework. The BCS Hamiltonian still works for low-T_c superconductors and can be explained and understood consistently with the positive Hubbard Hamiltonian that is widely believed to be suitable for high-T_c superconductors. Also, the issues of the 2e factor, the isotope effect and causality of superconductivity, etc. are discussed. It is as well indicated that as a methodology the approach that is recommendable for both high- and low- T_c superconductivity is the diagrammatic iteration approach (DIA) based on field theory, as referred below. The relevant results from the new method and new concept do not rule out the BCS conclusions for low-T_c superconductors. Instead, the original understanding of superconductivity is enhanced.

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