Canonical-basis solution of the Hartree-Fock-Bogoliubov equation on three-dimensional Cartesian mesh
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abstract A method is presented to obtain the canonical-form solutions of the HFB equation for atomic nuclei with zero-range interactions like the Skyrme force. It is appropriate to describe pairing correlations in the continuum in coordinate-space representations. An improved gradient method is used for faster convergences under constraint of orthogonality between orbitals. To prevent high-lying orbitals to shrink into a spatial point, a repulsive momentum dependent force is introduced, which turns out to unveil the nature of high-lying canonical-basis orbitals. The asymptotic properties at large radius and the relation with quasiparticle states are discussed for the obtained canonical basis.