

Abstract Submitted
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The Higgs resonance in fermionic condensates¹ ROMAN BARANKOV, Boston University — The Higgs mode appears in the spectrum of fermionic condensates described by the BCS model as a result of the energy dispersion of interaction. Specifically, the mode enters the spectral gap of quasi-particle excitations when the pairing of fermions is enhanced at the Fermi energy. Conversely, it becomes a resonance in the quasi-particle continuum with a finite lifetime, when the pairing is suppressed on the energy scale small compared to the equilibrium gap. The exponential decay of the mode converts into algebraic decay for a smooth suppression. We confirm our analytical results by numerical analysis of the pairing dynamics.

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