

Nee, Janpou

Nonlinear integral equation from the BCS gap equations of superconductivity. (English)

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The main result of the present paper establishes that the critical temperature T_c of the occurrence of superconductivity is determined by the the first eigenvalue of the kernel function in the context of the Markowitz-Kadanoff model. The results developed in the present paper show that the determination of the critical temperature may be reduced to a singleton equation. The proofs rely on elementary monotonicity techniques.

Reviewer: [Vicențiu D. Rădulescu \(Craiova\)](#)

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[45G15](#) Systems of nonlinear integral equations

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existence and uniqueness of positive solutions; eigenvalue; system of integral equation; superconductivity; Bardeen-Cooper-Schrieffer (BCS) theory

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