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ANALYTICAL RESULTS FOR TWO-BAND ATOMIC SUPERFLUID SYSTEM AS A GUIDANCE FOR SUPERCONDUCTING MATERIALS

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Analytical Results for Two-Band Atomic Results for Two-Band Atomic Superfluid System as a Guidance for Superconducting Materials

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ABSTRACT

The longstanding challenge in superconductivity research is the finding of a room temperature superconducting material. Synthetization of new superconducting materials requires the knowledge of material parameter dependence on their properties. As a test bed for developing a superconductor, we study two-component ultra-cold fermions in the presence of orbital Feshbach resonance. We develop an approximate theoretical approach to find the analytical solutions for the superconducting properties of the system.

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