

Abstract Submitted
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Polaron Metastability KAYVAN SADEGZADEH, University of Cambridge — We investigate the metastability associated with the first order transition from normal to superfluid phases along the BEC-BCS crossover in partially polarised Fermi gases. The momentum thresholds and rates of key decay processes involved are presented in the context of the system's phase diagram, together with metastability regions. In the limit of a single polaron, this region extends from the interaction strength at which a polarised phase of molecules becomes the groundstate ($\frac{1}{k_{F\uparrow}a}0.73$), to the value of the crossing point from a single polaron to molecule groundstate ($\frac{1}{k_{F\uparrow}a}0.9$). Finally, we propose experiments to explore the metastability of this Fermi liquid and the various decay processes, and to observe the $\frac{1}{k_{F\uparrow}a}0.9$ value.

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