

Abstract Submitted
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Non-Fermi liquid fixed point for an imbalanced gas of fermions in $1 + \epsilon$ dimensions ANDREW JAMES, AUSTEN LAMACRAFT, University of Virginia — We consider a gas of two species of fermions with population imbalance. Using the renormalisation group in $d = 1 + \epsilon$ dimensions, we show that for spinless fermions and $\epsilon > 0$ a fixed point appears at finite attractive coupling where the quasiparticle residue Z vanishes, and identify this fixed point with the transition to Larkin–Ovchinnikov–Fulde–Ferrell order (inhomogeneous superconductivity). When the two species of fermions also carry spin degrees of freedom we find a repulsive fixed point, indicating a transition to spin density wave order.

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