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Inhomogeneous superfluid phases of spatially separated trapped fermions KUEI SUN, University of Illinois at Urbana-Champaign, JULIA S. MEYER, The Ohio State University, DANIEL E. SHEEHY, Louisiana State University, SMITHA VISHVESHWARA, University of Illinois at Urbana-Champaign — Cold atom experiments that separately trap two species of interacting fermionic atoms offer the possibility of controlling pairing by adjusting the separation between the two trapping potentials. A nonzero separation between the two traps is effectively equivalent to a spatially-dependent local chemical potential difference for the two species. We explore potential inhomogeneous FFLO-type superfluid phases within this setup as a function of interaction strength and trap separation.

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