

Mass-Imbalanced Mixture of a Few Strongly Interacting Fermions Driven Through a Critical Point

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In a mass-imbalanced mixture of a few ultracold fermionic atoms with strong repulsive interactions, a spatial arrangement of the components depends on the shape of the external confinement. When the mixture is initially prepared in a one-dimensional box trap, and then the harmonic potential is slowly turned on, the system undergoes a structural transition. The finite-time quench through this transition is analyzed using an exact diagonalization method.

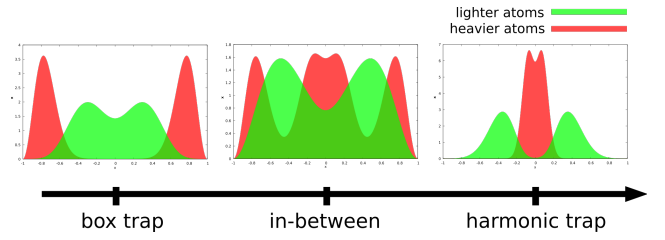


Figure 1: Density profiles for the system of 2 heavy and 2 light atoms at different moments of the transition

References

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