Contribution ID: **8** Type: **ORAL**

Correlation functions in inhomogeneous superfluids

Friday, 25 October 2024 14:20 (25 minutes)

We investigate the two-point correlation functions that characterize the low-energy properties of inhomogeneous superfluids. Employing a covariant formalism and an appropriate perturbative expansion we determine the correlation functions in an arbitrary inhomogeneous background. Our result apply to standard non-relativistic superfluids, realizable in laboratory, as well as to relativistic superfluids, relevant for compact stellar objects.

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Session Classification: Quantum Gases - Talks on specific topics

Track Classification: Quantum gases