

SEMINAR: Exploring pathways to lower temperatures for ultracold fermions

CHRISTIAN GROSS

November 22, 2024

15:00 to 16:00

Seminar Room

One of the most important challenges for fermionic systems in optical lattices is the quest for low temperatures. Only at temperatures below a few percent of the Fermi temperature correlation lengths become sizeable. This is the regime in which the system behaves highly collective, and where new quantum phases are expected to emerge. Despite significant progress in the recent years, the required temperatures have remained out of reach in optical lattices. Here we present a new experiment with a mixture of erbium and lithium atoms designed for optimized sympathetic cooling in optical lattices. We discuss the unique features of this surprisingly little explored mixture and present the current status of our new experimental setup designed to challenge the low-temperature frontier and to explore quantum many-body dynamics in new regimes.

Hosted by: Prof. Dr. Leticia Tarruell