FACOLTÀ DI SCIENZE MATEMATICHE, FISICHE E NATURALI
DIPARTIMENTO DI MATEMATICA E FISICA "NICCOLÒ TARTAGLIA"

Probing the order parameter of strongly correlated fermionic superfluids from Josephson supercurrents

Introduce
Claudio Giannetti
Università Cattolica del Sacro Cuore

Interviene
Giacomo ROATI
LENS, Firenze

Abstract

I will present our recent observation of dc Josephson effect in BCS-BEC superfluid Fermi gases. In the absence of any applied chemical potential difference, we directly measure Josephson supercurrents that depend sinusoidally on the relative phase, in agreement with Josephson's seminal prediction. We find quantitative agreement with a simple analytic model throughout the crossover region, enabling for the first time an explicit connection to the pair condensate density in strongly interacting Fermi gases. Our work demonstrates the effectiveness of coherent Josephson transport for pinning down superfluid order parameters, with great promise towards applications in diverse atomic systems, even with strong correlations.

Seminario

Giovedì 20 febbraio 2020
Sala Riunioni, ore 15.00
Via dei Musei 41 - Brescia

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del Sacro Cuore