Stuttgarter Physikalisches Kolloquium

Fachbereich Physik, Universität Stuttgart
Max-Planck-Institut für Festkörperforschung
Max-Planck-Institut für Intelligente Systeme

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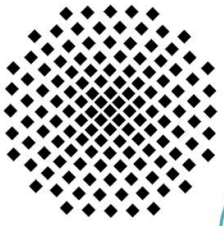

Dienstag, 14. Mai 2019	16:15 Uhr	Hörsaal V 57.01

Universität Stuttgart, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen

Gastgeber: Jun.-Prof. Dr. Stefan Kaiser, Universität Stuttgart, Telefon: 0711 - 685-65110

Non-equilibrium physics with strongly-interacting fermions

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Abstract

Ultracold atomic Fermi gases are a new paradigm to study strongly-correlated fermions in the unitary regime. Numerous experiments have revealed the equilibrium properties of such systems including universal thermodynamics and superfluidity. However, in the non-equilibrium domain, experiments and theory are scarce. One prominent example of dynamical phenomena are collective modes of the superfluid, the most prominent of which are the Higgs and Goldstone modes. Whereas the low-energy Goldstone (phase) mode is always stable, additional symmetries are required to prevent the Higgs (amplitude) mode from rapidly decaying into low-energy excitations and it has remained an open question how stable the Higgs mode is for strong interactions. We have observed the Higgs mode in a strongly-interacting superfluid Fermi gas and have studied it dependence (and eventual disappearance) with increasing interparticle interaction.