



EINLADUNG zum IFP-SEMINAR

Reentrant Fulde-Ferrell-Larkin-Ovchinnikov superfluidity in the honeycomb lattice

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Host: Jan Kuneš
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Wiedner Hauptstraße 8-10, 1040 Wien
Seminarraum DB gelb 09 (gelber Bereich, 9. OG)

We study superconducting properties of population-imbalanced ultracold Fermi mixtures in the honeycomb lattice that can be effectively described by the spin-imbalanced attractive Hubbard model in the presence of a Zeeman magnetic field. We use the mean-field theory approach to obtain ground state phase diagrams including the unconventional Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) phase, which is characterized by atypical behavior of the Cooper pairs total momentum. We show that the momentum changes its value as well as direction with change of the system parameters. We discuss the influence of van Hove singularities on the possibility of the reentrant FFLO phase occurrence, without a BCS precursor.