Nonanalytic Magnetic Response of Fermi- and non-Fermi Liquids
ANDREY CHUBUKOV, University of Wisconsin, DMITRII MASLOV, RONOJOY SAHA, University of Florida — We revisit the issue of the non-analytic dependence of the static spin susceptibility of a 2D Fermi liquid on temperature and a magnetic field, \( \chi_s(T, H) = \chi_0 + A T f_\chi(\mu_B|H|/T) \). We show that in a generic Fermi liquid the prefactor \( A \) is expressed via complex combinations of the Landau parameters, and does not reduce to the backscattering amplitude, contrary to the case of the specific heat \( C(T, H) \). We show that this distinction with the specific heat is mostly relevant near a ferromagnetic QCP — the non-analytic terms in \( \chi_s(T, H) \) are less singular near QCP than those in \( C(T, H) \).