Abstract Submitted
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Non Fermi Liquid Crossovers in a Quasi-One-Dimensional Conductor in an Inclined Magnetic Field[1] ANDREI LEBED[2], Department of Physics, University of Arizona — We consider a theoretical problem of electron-electron scattering time in a quasi-one-dimensional (Q1D) conductor in a magnetic field, perpendicular to its conducting axis. We show that inverse electron-electron scattering time becomes of the order of characteristic electron energy, $1/\tau \sim \epsilon \sim T$, in a high magnetic field, directed far from the main crystallographic axes, which indicates breakdown of the Fermi liquid theory. In a magnetic field, directed close to one of the main crystallographic axis, inverse electron-electron scattering time becomes much smaller than characteristic electron energy and, thus, applicability of Fermi liquid theory restores. We suggest that there exist crossovers between Fermi liquid and some non Fermi liquid states in a strong enough inclined magnetic field. Application of our results to the Q1D conductor $(Per)_2Au(mnt)_2$ shows that it has to be possible to observe the above mentioned phenomenon in feasibly high magnetic fields of the order of $H \geq H^* \simeq 25\ T$.

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[2]Please, schedule my talk in the section "Non Fermi liquids".

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