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Effect of electron-phonon scattering on magneto-transport in 2DES M. G. VAVILOV, University of Wisconsin — We evaluate the contribution of electron-phonon scattering to the non-linear magneto-resistance of two-dimensional electron systems (2DES). Both linear [1] and differential [2] magneto-resistances show oscillatory dependence on the applied magnetic field in high mobility 2DES. These oscillations originate from the relation between the change of electron energy in a scattering event and the cyclotron frequency. In case of electron scattering with phonons in dc electric fields, the change in electron energy is equal to the sum of the energy of an emitted or absorbed phonon and the change of the electrostatic electron energy due to the shift of an electron cyclotron trajectory. We show that the electrostatic contribution in sufficiently strong fields moves the position of maxima and minima of the differential magnetoresistance. We also explain why the phonon-induced magneto-oscillations exist in the linear response regime only at moderately high temperatures, but appear at significantly lower temperatures in stronger electric fields. [1] M.A. Zudov, et al., Phys. Rev. Lett. **86**, 3614 (2001). [2] W. Zhang, et al., arXiv:0711.1547v1 (2007).

M. G. Vavilov
University of Wisconsin

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