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Angular dependent Nernst effect in Bi_xSb_{1-x} across the quantum limit KAMRAN BEHNIA, ZENGWEI ZHU, BENOIT FAUQUÉ, ARITRA BANERJEE, ESPCI, BERTRAND LENOIR, Ecole des Mines — The Fermi surface of bismuth occupies a tiny (10^{-5}) fraction of the Brillouin zone. Therefore, a field of 9 T oriented along the trigonal axis pushes the electrons to their lowest Landau level. Alloying bismuth with antimony reduces the carrier density and lowers this threshold field known as the quantum limit. Approaching this limit, the Nernst-Ettingshausen effect was found to display giant quantum oscillations whose magnitude is yet to be understood. The Nernst response presents sharp peaks each time a Landau level of hole-like quasi-particles meets the chemical potential. In addition to these peaks, a number of anomalies of unidentified origin were detected. Here, we present the first study of Nernst effect as a function of a rotating magnetic field in Bi_xSb_{1-x} up to 12 T. The results highlight the role played by the Dirac quasi-particles of the electron pockets in the generation of the unidentified anomalies.

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