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Anomalous Hall and Nernst effects in electron and hole-doped semiconductors EUGEN DUMITRESCU, CATALINA MARINESCU, Clemson University, CHUANWEI ZHANG, Washington State University, SUMANTA TEWARI, Clemson University — Recently it has been proposed that Majorana fermions may exist in a thin film semiconductor with proximity induced s-wave superconductivity. We compute anomalous Hall and anomalous Nernst coefficients for both electron and hole-doped semiconducting systems in the presence of an in-plane magnetic field and Rashba and Dresselhaus spin-orbit coupling. The anomalous Nernst coefficient vanishes and has plateaus as a function of the chemical potential corresponding to carrier densities which realize the topological state.

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