

Abstract Submitted
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Resonant spin polarization and Hall conductances in a two-dimensional electron gas DEGANG ZHANG, Texas Center for Superconductivity and Department of Physics, University of Houston, TX 77204, YAO-MING MU, Center for Advanced Materials, University of Houston, TX 77204, CHIN-SEN TING, Texas Center for Superconductivity and Department of Physics, University of Houston, TX 77204 — We have studied transport properties in a two-dimensional electron gas with equal Rashba and Dresselhaus spin-orbit interactions under a perpendicular magnetic field. By employing the exact solution for this system, we found resonant charge and spin Hall conductances at a certain magnetic field, where all the nearest-neighboring Landau levels cross. Near the magnetic field, there exists a resonant spin polarization, which can also induce resonant charge and spin Hall effects.

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