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g-factor anisotropy in p-type GaAs/AlGaAs quantum point contacts SUNANDA KODUVAYUR, LEONID ROKHINSON, Purdue University — In this work we report the influence of lateral confinement on the effective Lande **g**-factor for holes in GaAs. For 2D hole gas grown along crystallographic direction other than the high symmetry [100] or [111], mixing of heavy and light hole subbands leads to anisotropic g-factor depending on the direction of the in-plane magnetic field.Further lateral confinement of the holes into 1D channel modifies g-factor depending on the strength and direction of the confining potential. We investigate **g**-factor in quantum point contacts (QPC) fabricated on 2D hole gas on [$\bar{3}$11]A GaAs by AFM lithography using the local anodic oxidation technique. Several QPCs are oriented along the major [$\bar{2}$33] or [$\bar{1}$10] axis. In-plane **B** is predominantly acting on the spin part of the Hamiltonian and the magnitude of the Zeeman splitting can be obtained from energy level spectroscopy combined with the critical fields at which half-integer steps in the conductance (in units of $\frac{2e^2}{h}$) appear. The **g**-factor is found to be strongly modified compared to the values reported for a 2D hole gas and has strong dependence on the quantized momentum normal to the current flow (number of filled energy levels in the point contact). Thus the g-factor can be modulated electrostatically, providing an extra degree of control of spintronic devices.

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