

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Towards Novel Electron and Hole Structures: Characterizing n- and p-Type (110) GaAs/AlAs M. GRAYSON, S. DASGUPTA, S. F. ROTH, N. ISIK, A. FONTCUBERTA-I-MORRAL, M. BICHLER, Walter Schottky Institut, TU Muenchen, Germany — The (110) facet of GaAs holds promise for new devices because it is the cleave facet, allowing cleaved edge overgrowth [1] and corner overgrowth structures [2], and because recent work demonstrates that Si can also function as an acceptor for high mobility p-type structures [3]. We present characterizations of p-doped GaAs on (110) wafers and cleave facets, which show an interesting spin-orbit coupling effect, resulting in a spin-index anticrossing in the lowest Landau level. n-doped AlAs on the same (110) facet shows a strong anisotropy, suggesting that only a single anisotropic-mass valley is occupied. Initial attempts at combining n- and p-type doped structures in coplanar 2D systems will be presented. [1] M. Grayson, APL 87, 212113 (2005); [2] M. Grayson, APL 86, 032101 (2005); [3] F. Fischer, APL 86, 192106 (2005).

Matthew Grayson
Walter Schottky Institut, TU Muenchen, Germany

Date submitted: 20 Nov 2006

Electronic form version 1.4