

Abstract Submitted  
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**Reorientation of the anisotropic phase of a 2D electron system using a very small density modulation** MD SHAFAYAT HOSSAIN, M A MUEED, HAO DENG, MANSOUR SHAYEGAN, LOREN PFEIFFER, K.W. WEST, KIRK BALDWIN, Princeton University — A high-quality two-dimensional electron system (2DES) confined to a GaAs quantum well typically exhibits isotropic transport coefficients when the Fermi level resides in the first excited ( $N = 1$ ) Landau level. Adding an in-plane magnetic field ( $B_{\parallel}$ ) leads to an anisotropic (stripe) phase with the stripes oriented perpendicular to the  $B_{\parallel}$  direction. We study how a periodic density modulation of the 2DES, induced by a surface strain grating from lines of negative electron-beam resist, affects the orientation of the  $\nu = 7/2$  stripe phase. Our results reveal that the external potential modulation competes against the  $B_{\parallel}$ -induced orientational order of the stripe phase. Even a minute ( $\sim 0.5\%$ ) density modulation is sufficient to reorient the stripes at  $\nu = 7/2$  along the direction of the surface grating.

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