

Abstract Submitted
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Stripe phase in half-filled $N=0$ Landau level of 2D hole systems¹

PO ZHANG, Peking University, RUI-RUI DU, Rice University, LOREN PFEIFFER, KEN WEST, Princeton University — 2D electron gas (2DEG) and 2D hole gas (2DHG) exhibit rich phases when subjected to strong magnetic fields and low temperatures, including the fractional quantum Hall (FQH) states, Wigner crystal, stripe phase, and bubble phase. It has been well established that in GaAs 2DEG the stripe phases prevail in half-filled Landau level (LL) whose index $N > 1$ (≥ 1), under a perpendicular (tilt) magnetic field. The FQH states are more favored in $N=1$ and $N=0$ LLs. The ground states at half-fillings vary from LL to LL because in each LL the pseudo potential is different. 2DHG differs from 2DEG due to the formers stronger LL mixing and inverted LL index, hence one may expect a different pattern of phase competition in 2DHG. Here we report an observation of stripe phase at filling factor $\nu = 3/2$ in $N=0$ Landau level of GaAs 2DHG (arXiv:1607.07858). The widths of quantum wells involved are 17.5nm and 20nm. Similar observation was reported by Y. Liu et al., Phys. Rev. B 94, 155312 (2016), in wider (30 and 35nm) quantum wells.

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