

Abstract Submitted  
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**Composite Fermion States near  $3/2$  Hosted by a High-Mobility 2D Hole System**<sup>1</sup> PO ZHANG, Peking Univ, RUIYUAN LIU, Rice University, JIANLI WANG, CHI ZHANG, Peking Univ, CHANGLI YANG, LI LU, IOP, Chinese Academy of Sciences, LOREN PFEIFFER, KEN WEST, Princeton University, RUI-RUI DU, Rice University — Magnetotransport experiments of Carbon-doped GaAs/AlGaAs 2D hole gas (2DHG) have revealed a variety of interesting phenomena previous not seen in the 2DEG counterpart. For example, it was found that the effective  $g$ -factor of 2DHG is large enough to cause Landau level crossing even at  $\sim 1$  T, and the product of  $gm^*$  (where  $m^*$  is the hole effective mass) increases with total magnetic field (Yuan et al, Appl. Phys. Lett. 94, 052103 (2009)). Such level crossings could have profound influences on the fractional quantum Hall states in the relevant magnetic fields. We systematically investigate the composite fermion states near  $3/2$  in C-doped high-mobility 2DHG by tilted-magnetic field experiments, and map out the Landau levels and composite fermion spectra as a function of hole density and tilt angles. Preliminary results and brief discussions will be presented.

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