

Abstract Submitted
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Broken Symmetry Quantum Hall states in Dual Gated ABA Tri-layer Graphene YONGJIN LEE, University of California Riverside, JAIRO VELASCO JR., University of California Berkeley, DAVID TRAN, University of California Riverside, FAN ZHANG, University of Pennsylvania, WENZHONG BAO, LEI JING, KEVIN MYHRO, University of California Riverside, DMITRY SMIRNOV, National High Magnetic Field Laboratory, JEANIE LAU, University of California Riverside — We perform low temperature transport measurements on dual-gated suspended trilayer graphene in the quantum Hall (QH) regime. We observe QH plateaus at filling factors $\nu = -8, -2, 2, 6$, and 10, in agreement with the full-parameter tight binding calculations. In high magnetic fields, oddinteger plateaus are also resolved, indicating almost complete lifting of the 12-fold degeneracy of the lowest Landau levels (LL). Under an out-of-plane electric field E_{\perp} . We observe degeneracy breaking and transitions between QH plateaus. Interestingly, depending on its direction, E_{\perp} selectively breaks the LL degeneracies in the electron-doped or hole-doped regimes.

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