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Broken Symmetry States in Dual Gated Rhombohedral Trilayer Graphen YONGJIN LEE, No Company Provided, DAVID TRAN, KEVIN MYHRO, JAIRO VELASCO JR., NATHANIEL GILLGREN, CHUNG NING LAU, YAFIS BARLAS, University of California, Riverside, JEAN-MARIE POUMIROL, DMITRY SMIRNOV, National High Magnetic Field Laboratory, FRANCISCO GUINEA, ICMM-CSIC — We perform low temperature transport measurements of dual-gated rhombohedral-stacked trilayer graphene device. At the charge neutral point, we observe a giant interaction-induced gap, $\sim$ 41mV that is suppressed by an interlayer potential or a critical temperature Tc $\sim$ 28K, suggesting a layer antiferromagnetic ground state with broken time reversal symmetry. In the quantum Hall regime, we observe QH plateaus at filling factors ν =0, 1, 2 and 3 in a high magnetic field.

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