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Scanning tunneling spectroscopy of Landau levels near a zigzag edge of graphene[1] GUOHONG LI, ADINA LUICAN, EVA Y. ANDREI, Department of Physics and Astronomy, Rutgers University, Piscataway, NJ 08855 — The quantum Hall plateaus observed in the transverse conductance of a two dimensional electron system in the presence of a magnetic field are believed to be a direct consequence of edge states. However, these states have not been characterized directly. For example, an outstanding question is how the Landau levels evolve from the bulk towards a sample edge. Using a low temperature high magnetic field scanning tunneling microscope, we studied the spatial dependence of electronic states in graphene in the presence of a magnetic field. We will report on the evolution of well resolved bulk Landau levels into edge states upon approaching a zigzag edge. The results, obtained by monitoring the scanning tunneling spectroscopy peaks corresponding to the first few Landau levels, will be compared to theoretical predictions.

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