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Superconducting coupling of \nu = 1 quantum Hall edges states in graphene JING K. SHI, GIL-HO LEE, Harvard University, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute for Material Science, Japan, PHILIP KIM, Harvard University — Over the past few years, there have been intense experimental and theoretical developments in engineering topological states with various material platforms. One candidate system of realizing zero energy Majorana mode is employing the coupling of superconductivity and spin non-degenerated quantum Hall edge states in a two-dimensional material. In this talk, we present quantum transport study on quasi-one dimensional superconducting electrodes fabricated on high-quality boron nitride encapsulated graphene. The crossed Andreev process and the Josephson effect are investigated at a graphene filling factor of \nu = 1 with different magnetic fields and temperatures, which would serve as direct probes of topological superconductivity.

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