Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Oscillatory magnetotransport between co-propagating quantum Hall edge channels in graphene p-n junctions SEI MORIKAWA, SATORU MASUBUCHI, RAI MORIYA, Institute of Industrial Science, University of Tokyo, KENJI WATANABE, TAKASHI TANIGUCHI, National Institute for Materials Science, TOMOKI MACHIDA, Institute of Industrial Science, University of Tokyo — We conducted magnetotransport measurements in high-quality dual-gated graphene n-p-n junctions. As we used hexagonal boron nitride as a dielectric layer, Fabry-Perot interference patterns[1] can be observed clearly in zero magnetic fields, owing to the extremely high carrier mobility of our devices.[2] Moreover, the two-terminal resistance R exhibited oscillatory behavior as a function of the magnetic field B, whose oscillation period ΔB differed from both the conventional Shubnikov-de Haas effect ($\Delta B \propto B$) and the Aharonov-Bohm effect with magnetic flux penetrating through the gated region (ΔB = const). The oscillatory behavior of R was well reproduced by our numerical calculation under the assumption that R oscillated as a function of the magnetic flux penetrating through the insulating region between the co-propagating p and n quantum Hall edge channels.[3]

[1]A. F. Young *et al.*, **Nat. Phys.** 5, 222.
[2]S. Masubuchi, S. Morikawa *et al.*, **Jpn J. Appl. Phys.** 52, 110105.
[3]S. Morikawa *et al.*, submitted.

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Date submitted: 10 Nov 2014 Electronic form version 1.4