

Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Entanglement swapping of polarization entangled photon pairs from Doppler-broadened atomic ensemble. JIHO PARK, HEONOH KIM, HAN SEB MOON, Pusan National University — We experimentally observed entanglement swapping of two independent polarization entangled photon pairs generated by spontaneous four-wave mixing(SFWM) in Doppler-broadened ^{87}Rb atomic ensemble. Polarization entangled photon pairs are generated in Sagnac interferometer configuration which enable us to produce four Bell states in stable condition and performed Bellstate analysis with a fidelity of 93%. We also demonstrated entanglement swapping by utilizing the polarization entangled photon pairs with polarization projective measurement. The results shown here would be an important contribution to an atom-photon interface in the field of quantum optics.

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Date submitted: 31 Jan 2019

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