

Joint CQSE and CASTS Seminar

Weekly Seminar
Jun. 5, 2015 (Friday)

TIME Jun. 5, 2015, 14:30 ~ 15:30
TITLE Entangle polarization by photon beam pair and simplified alignment by pump beam
SPEAKER Prof. Atsushi Yabushita
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PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

After the development of optical fiber communications, light have been used as one of the most useful media for information transfer. Especially, utilizing entangled photon pair, security of the communication can be theoretically guaranteed by quantum theory. In typical scheme, the polarization entangled photon pair can be generated from the cross-section of the light cones of spontaneous parametric down conversion (SPDC) photon pair. Thus, the pairs generated outside of the cross-section cannot be used for application, which suppress the information transfer rate. In our first work, we have proposed and demonstrated to entangle all of the generated photon pairs.

In our second work, we have solved the well-known difficulty in the preparation of the entangled photon pair coming from its low signal intensity. We have proposed and demonstrated a new scheme to perform the alignment without any difficulty utilizing the pump beam, whose detail will be discussed in the talk.

