

Abstract Submitted  
for the HAW14 Meeting of  
The American Physical Society

**Bose-Einstein correlations between two neutral pions from photoproduction below 1.2 GeV** QINGHUA HE, Research Center for Electron Photon Science (ELPH), Tohoku University, Sendai 982-0826, Japan, RYO HASHIMOTO, CMRC and PF, Institute of Materials Structure Science, KEK, TAKATSUGU ISHIKAWA, Tohoku University, SHINICHI MASUMOTO, University of Tokyo, MANABU MIYABE, NORIHITO MURAMATSU, HAJIME SHIMIZU, Tohoku University, YASUHISA TAJIMA, Yamagata University, YUSUKE TSUCHIKAWA, HIROHITO YAMAZAKI, RYUJI YAMAZAKI, Tohoku University, FOREST COLLABORATION — For the first time, we studied the space-time properties of the excited nucleons in the non-perturbative QCD region, via Bose-Einstein correlations (BEC) between two neutral pions from photoproduction off the proton/deuteron at incident photon energies below 1.2 GeV. In order to measure the Bose-Einstein correlations of two pions, an event mixing technique was developed and proved to be effective. The experiment was carried out at the Research Center for Electron Photon Science (ELPH) at Tohoku University. A  $4\pi$  electromagnetic calorimeter complex, named FOREST, was employed to detect neutral pions decaying into photons as well as some charged particles in the final state. In this work, we present the results of the spatial extension of the reaction region obtained from the BEC analysis. In addition, the BEC analysis provides useful information about the underlying mechanism of double neutral pion photoproduction. Preliminary results related to this study will be given.

Qinghua He  
Research Center for Electron Photon Science (ELPH),  
Tohoku University, Sendai 982-0826, Japan

Date submitted: 30 Jun 2014

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