Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Precision Measurement of the π^0 Lifetime via the Primakoff Effect[1] LIPING GAN, University of North Carolina Wilmington, THE PRIMEX COLLABORATION COLLABORATION — The neutral pseudoscalar mesonπ^0 plays a fundamental role in QCD at low-energy. The $\pi^0 \to \gamma\gamma$decay width offers a sensitive probe for the chiral anomaly and spontaneous chiral symmetry breaking, and the nature of QCD confinement. The theoretical calculations over the last decade have reached 1% precision in the decay amplitude of the π^0 into two photons. The experimental measurement of this parameter with a comparable precision will be an important test of QCD. The PrimEx collaboration at Jefferson Lab has developed and performed experiments to measure theπ^0 radiative decay width via the Primakoff effect. The published result from the first experiment (PrimEx-I) has a 2.8% total uncertainty. The second experiment (PrimEx-II) was performed with the final goal of 1.4% precision. The updated result of PrimEx-II will be presented.

[1]This project is supported by National Science Foundation. MRI PHY-0079840, PHY-1206043, and PHY-1506303.

Liping Gan
University of North Carolina Wilmington

Date submitted: 07 Jul 2016 Electronic form version 1.4