

Abstract Submitted  
for the DNP15 Meeting of  
The American Physical Society

**Measurement of the Neutral Pion Lifetime** YANG ZHANG, Duke University, PRIMEX COLLABORATION — The QCD chiral anomaly is the dominant contribution to the  $\pi^0 \rightarrow \gamma\gamma$  decay. Therefore, a precision measurement of the  $\pi^0$  decay width and its comparison with prediction of  $\pi^0$  lifetime can be used as a test of QCD at the confinement scale. Recent theoretical activities have demonstrated high precision (1% level) calculations of the decay width of the  $\pi^0$  into two photons. An experimental determination with comparable precision will be critical to test these predictions. At Jefferson Lab, the PrimEx Collaboration has performed high precision experiments to measure the  $\pi^0$  lifetime using the Primakoff effect. The first (PrimEx-I) experiment resulted in a published 2.8% total uncertainty in the  $\pi^0$  decay width. PrimEx-II was carried out in the fall of 2010 with the final goal of 1.4% precision. The preliminary result of this experiment will be presented. This work is supported in part by the US Department of Energy under contract number DE-FG02-03ER41231.

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Date submitted: 30 Jun 2015

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