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A Precision Measurement of the Neutral Pion Lifetime Via the Primakoff Effect ERIC CLINTON, University of Massachusetts Amherst, PRIMEX COLLABORATION — The neutral pion lifetime is arguably the most precise theoretical calculation possible in low energy QCD, but the current world data are not commensurate with theory. Recent calculations predict a neutral pion radiative width of 8.1 eV ± 1%, while the PDG average stands at 7.84 eV ± 7%. The Primakoff Experiment (PrimEx) collaboration has utilized the Primakoff effect, photo-meson production in the Coulomb field of nuclei, to generate neutral pions. PrimEx collected data in Hall B at the Thomas Jefferson National Accelerator Facility with the expectation of measuring the neutral pion lifetime to an accuracy of 1.5%. Results of this measurement will be presented. This result is a stringent test of the U(1) axial anomaly, and thus fills an important gap in our knowledge of low energy QCD.

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