

Photoproduction of the π^0 meson was studied using the **CLAS** detector at Thomas Jefferson National Accelerator Facility using tagged incident beam energies spanning the range $E_\gamma = 1.1$ GeV - 5.45 GeV. The measurement is performed on a liquid hydrogen target in the reaction $\gamma p \rightarrow p e^+ e^- (\gamma)$. The final state of the reaction is the sum of two subprocesses for π^0 decay, the Dalitz decay mode of $\pi^0 \rightarrow e^+ e^- \gamma$ and conversion mode where one photon from $\pi^0 \rightarrow \gamma \gamma$ decay is converted into a $e^+ e^-$ pair. This specific final state reaction avoided limitations caused by single prompt track triggering and allowed a kinematic range extension to the world data on π^0 photoproduction to a domain never systematically measured before.

We report the measurement of the π^0 differential cross sections $\frac{d\sigma}{d\Omega}$ and $\frac{d\sigma}{dt}$. The angular distributions agree well with the SAID parametrization for incident beam energies below 3 GeV, while for an interpretation of the data within the **GPD** handbag model is discussed for incident beam energies greater than 3 GeV. As a result with this new data, the $\chi^2/p.d.f.$ of the global fit in the SAID parametrization improved to 2.9 from 3.9.