Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Studying the Medium Effects of the ω and ϕ Mesons at JLab MICHAEL WOOD, Canisius College, RAKHSHA NASSERIPOUR, George Washington University, CHADEN DJALALI, University of South Carolina, DENNIS WEYGAND, Thomas Jefferson National Accelerator Facility, CLAS COLLABORATION — The E01-112 experiment at Jefferson Lab (JLab) in Newport News, VA, USA is an investigation of the properties of the ρ, ω, and ϕ mesons in dense nuclear matter. The vector mesons are produced by a high-intensity photon beam, with energies up to 4 GeV, incident on targets ranging from ^{2}H to Pb. Using the CEBAF Large Acceptance Spectrometer (CLAS) in Hall B at TJNAF, the mesons are reconstructed by means of their rare leptonic decay to e^+e^-, eliminating any hadronic final state interactions. These data make possible an analysis of the in-medium widths of the ω and ϕ mesons. The in-medium widths can be accessed by measuring the amount of absorption inside the nucleus. An increase in the in-medium ωN and ϕN cross sections leads to an increase in the number of absorbed mesons. The signature of absorption is a decrease of the nuclear transparencies as a function of the number of target nucleons. The results indicate a substantial widening of the ω and ϕ mesons in the medium. The CBELSA/TAPS Collaboration has published transparency ratios for the channel $\omega \to \pi^0\gamma$, that also shows an increase in the in-medium width. The JLab results show a greater absorption than what was measured by CBELSA/TAPS.

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Date submitted: 26 Jun 2009 Electronic form version 1.4