

Abstract Submitted  
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**Upgrade of the Cherenkov Detector of the JLab Hall A BigBite Spectrometer** MICHAEL NYCZ, Kent State Univ - Kent — The BigBite Spectrometer of the Hall A Facility of Jefferson Lab will be used in the upcoming MARATHON experiment at Jefferson Lab to measure the ratio of neutron to proton  $F_2$  inelastic structure functions and the ratio of up to down,  $d/u$ , quark nucleon distributions at medium and large values of Bjorken  $x$ . In preparation for this experiment, the BigBite Cherenkov detector is being modified to increase its overall efficiency for detecting electrons. This large volume counter is based on a dual system of segmented mirrors reflecting Cherenkov radiation to twenty photomultipliers. In this talk, a description of the detector and its past performance will be presented, along with the motivations for improvements and their implementation. An update on the status of the rest of the BigBite detector package, will be also presented. Additionally, current issues related to obtaining  $C_4F_8O$ , the commonly used radiator gas, which has been phased out of production by U.S. gas producers, will be discussed. This work is supported by Kent State University, NSF Grant PHY-1405814, and DOE Contract DE-AC05-06OR23177.

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