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Results from the JLab MARATHON Tritium DIS Experiment[1]
GERASSIMOS PETRATOS, Kent State University, JEFFERSON LAB HALL A MARATHON TRITIUM COLLABORATION COLLABORATION — Results from the Jefferson Lab (JLab) MARATHON experiment on electron deep inelastic scattering (DIS) from light nuclei will be presented. The experiment measured, using an 11 GeV electron beam and the JLab Hall A spectrometer facility, DIS cross section ratios for 2H, 3H and 3He in order to determine, using a novel method, free of the theoretical uncertainties present in previous SLAC measurements, the ratio of the F2n/F2p structure functions of the neutron and proton. The results from the experiment are expected to test predictions of the quark model of the nucleon and of perturbative quantum chromodynamics, and to constrain the nucleon's parton distribution function parametrizations needed for the interpretation of high energy collider data. Another goal of the experiment was a precise determination of the EMC effect of the two A=3 mirror nuclei, which will be also presented. The results are considered essential for the explanation of the EMC effect, which represents the modification of the nucleon structure functions in the nuclear medium.

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