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SUMMARY OF PROPOSAL

MEASUREMENT OF NUCLEON STRUCTURE FUNCTIONS IN HORN FOCUSED ν AND $\bar{\nu}$ BEAMS IN BEBC FILLED WITH NEON

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We propose a short period of neutrino and antineutrino running (5×10^{17} protons) in BEBC filled with 75% Ne/H_2 mixture. The aim of this experiment is to make more precise measurements of the neutrino nucleon structure functions F_2 and xF_3 in the intermediate q^2 region (q^2 = 1-10 GeV^2) in order to test QCD. Measurements in this region are particularly important in testing QCD, since the characteristics logarithmic variations predicted by the theory are large. Furthermore, sub-asymptotic corrections which affect the interpretation of even the highest available q^2 data should be measured in the region of q^2 where they are largest. This region has not been analyzed at large x in counter experiments, because of resolution and acceptance problems. BEBC on the other hand has excellent muon resolution and acceptance even at very low energies and is the best available detector

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for low energy neutrino events.

Our request is for a total of $\sim 5 \times 10^{17}$ protons in a wide band horn focused beam in BEBC filled with a 75% Ne/H_2 mixtures.

Neutrino running

1.0×10^{17} protons corresponding to $\sim$20.000 pictures yielding $\sim$8.500 cc ν events,

Antineutrino running

4.0×10^{17} protons corresponding to $\sim$90.000 pictures yielding $\sim$5.000 cc $\bar{\nu}$ events,

assuming 350 GeV protons on target.