

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

**Design and Commissioning Progress of HCAL-J: A Segmented
Hadron Calorimeter with Excellent Timing and Position Resolution¹**

SCOTT BARCUS, Jefferson Lab, SUPER BIGBITE COLLABORATION — The design and commissioning progress for a new segmented hadron calorimeter (HCAL-J), constructed to measure the energy of several GeV protons and neutrons, will be presented. HCAL-J is composed of 288 individual calorimeter modules measuring 15cm×15cm×1m. These modules consist of 40 layers of iron, which cause the hadrons to shower, alternating with 40 layers of scintillator, which sample the energy. HCAL-J has a time resolution of 0.5 ns, a position resolution as good as 3-4 cm, and detects protons and neutrons with near identical efficiency. This calorimeter will be used in the upcoming Super BigBite Spectrometer (SBS) experiments, measuring the nucleon form factors in Jefferson Lab's Hall A. HCAL-J's role in the measurement of the neutron magnetic form factor, G_M^n , will be explained. Efforts to implement HCAL-J's trigger, using neural networks loaded onto FPGAs, will also be discussed.

¹DOE

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Date submitted: 08 Jan 2021

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