

Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Construction of an Electromagnetic Calorimeter with Thermal Annealing of Lead Glass in Situ¹ BENJAMIN CROWE, TANINA BRADLEY, CAESAR JACKSON, North Carolina Central University, SEAMUS RIORDAN, Argonne National Laboratory, ALBERT SHAHINYAN, Yerevan Physics Institute, BOGDAN WOJTSEKHOWSKI, Jefferson Laboratory — The construction of a new Electromagnetic Calorimeter is underway for the Super BigBite Spectrometer at Jefferson Lab for the purpose of significantly improving the experimental measurement of the proton electric form factor (GEP-E12-07-109) from the reaction $p(\bar{e}, e' \bar{p})$. The well-known problem of radiation damage of lead glass calorimeters from high luminosity experiments such as GEP is being addressed in this design. A novel approach is taken to design a system for continuous thermal annealing in situ to experimental operation. Also, the careful selection of lead glass and light guide materials is found to be very important toward achieving higher signal efficiency and stronger structural strength for the core detector elements. A description of the design and construction of the calorimeter will be presented along with preliminary results from bench tests on some of the subassemblies of the instrument.

¹This work is supported in part by the National Science Foundation

Benjamin Crowe
North Carolina Central Univ

Date submitted: 12 Jan 2018

Electronic form version 1.4