

Abstract Submitted
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High-Density, Scintillating, Fluoride Glass Calorimeters UGUR AKGUN, QIUCHEN XIE, Coe College — The unprecedented radiation levels in current Large Hadron Collider runs, and plans to even increase the luminosity creates a need for new detector technologies to be investigated. Here, we propose to use high density, scintillating, fluoride glasses as active media in calorimeters. CHG3 is a special example of this glass family, which has been developed specifically for hadron collider experiments, and is known for fast response time, in addition to high light yield. In this presentation, the results from a computational study on the performances of the two different designs of CHG3 glass calorimeters are reported. First design reads the signal directly from the edge of the glass plate; the second design utilizes wavelength-shifting fibers to carry the signal out of the glass plate. Each simulation model is a sampling calorimeter with 20 alternating layers of glass and iron absorber. By changing the absorber thickness we tested hadronic as well as electromagnetic capabilities of the calorimeter models.

Ugur Akgun
Coe College

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