

Abstract Submitted  
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**Neutron and Gamma Discrimination with Combination Glass and Liquid Scintillator**<sup>1</sup> GREGORY HILL, ANDREW MCCLELLAN, LAWRENCE REES, JOHN ELLSWORTH, Brigham Young University Physics Department — The discrimination of neutrons and gamma rays has become an important field of research both for scientific purposes as well as security purposes. Until recently Helium -3 was used to discriminate neutron radiation from gamma; however, with the depletion of Helium-3 reserves, new methods must be found. The BYU Nuclear Research group has developed a single PMT hybrid Lithium-6 glass and liquid scintillator that combines the discrimination characteristics of both materials. Parameters such as pulse area, area distribution, and after-peaking count are used to discriminate between gamma radiation and neutron radiation. New techniques of single and double pulse analysis were developed to take advantage of the information provided by the hybrid detector. This allows us to achieve discrimination errors that are less than either of the two materials separately.

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