

Abstract Submitted
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Characterization of CeBr₃ Scintillation Detectors for use in Coincidence Measurements¹ JACK ENRIGHT, WANPENG TAN, ANI APRAHAMIAN, University of Notre Dame — Coincidence measurements play an important role in nuclear experiments. The advantages of CeBr₃ scintillation detectors over the more commonly used LaBr₃ and HPGe detectors in the detection of gamma-rays such as in $^{12}\text{C}+^{12}\text{C}$ measurements are shown. The coincidence technique is required for the carbon fusion reaction in order to measure its cross section at energies well below the Coulomb barrier. The usefulness of CeBr₃ scintillation detectors for the most important energies of astrophysical $^{12}\text{C}+^{12}\text{C}$ fusion processes ($1-3\text{MeV}$ in the center of mass) is discussed. The results of a gamma-gamma coincidence set-up for ^{60}Co including two CeBr₃ scintillation detectors from Berkeley Nucleonics are reported. The results of a gamma-neutron coincidence experiment for ^{252}Cf using the aforementioned CeBr₃ detectors alongside lithium glass and liquid scintillators are shown also.

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Shelly Leshner
Univ. of WI, La Crosse

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