

Abstract Submitted
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Differential cross sections for $^{13}\text{C}(\alpha,n)^{16}\text{O}$ reaction¹ CYNTHIA WOOD, UNC and TUNL, BRUNO BRAIZINHA, HUGON KARWOWSKI, MARY KIDD, Duke and TUNL, WERNER TORNOW — The reaction $^{13}\text{C}(\alpha,n)^{16}\text{O}$ is the major source of correlated background in the prompt energy spectrum obtained at KamLAND¹. The source of α -particles is the decay of ^{210}Po . In the α -particle energy range from 2.5 and 5.4 MeV there are more than 20 resonances present in the (α,n) excitation function. To reduce the uncertainties, a high precision measurement of the differential cross section data for $^{13}\text{C}(\alpha,n)$ was made. The α -particle beam was produced at the TUNL Tandem accelerator and directed onto self-supporting 100 to 200 $\mu\text{g}/\text{cm}^2$ thick ^{13}C targets. Outgoing neutrons were detected in eight LS detectors placed at lab angles between 23° and 150° and identified by pulse shape discrimination. The differential cross section data will be presented and normalization techniques will be discussed.

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