Abstract Submitted
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^{10,11}B(α,n)^{13,14}N cross section measurements[11] QIAN LIU, University of Notre Dame and JINA, FEBBRARO MICHAEL, Oak Ridge National Laboratory, RICHARD DEBOER, WIESCHER MICHAEL, University of Notre Dame and JINA — ^{10,11}B(α,n)^{13,14}N have been identified as possible background sources for underground experiments at low E_α energy [1]. These reactions have been studied at University of Notre Dame's Nuclear Science Laboratory using Santa Anna 5 MV accelerator. ^{11}B(α,n)^{14}N was measured with a ^{3}He counter, and a good R-matrix fit was obtained, which shows our data in agreement with other published data. Measurement of ^{10}B(α,n)^{13}N was performed down to $E_\alpha = 0.57$MeV, with two deuterated liquid scintillators, EJ315 and EJ301D, and with the help of unfolding technique, neutron energy information can be extracted. EJ301D is a newly-developed neutron detector, with better pulse shape discrimination [2], and has been used to do angular distribution measurements. Additionally, the $(\alpha, \alpha_1\gamma)$ and $(n, p\gamma)$ channels have been monitored independently by observation of 718keV γ transition in ^{10}B and 3853keV γ transition in ^{13}C. Preliminary analysis indicates the discovery of a new resonance in low energy region. [1] D.-M.Mei *et al.* NIMA **606**, 651(2009). [2] F.D Becchetti *et al.* NIMA **820**, 112(2016).

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