# Comprehensive measurements of alpha induced reactions on 10,11B isotopes

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Alpha-induced reactions on 10,11B isotopes play a key role in both fundamental and applied nuclear science. For nuclear nonproliferation applications, alpha-induced reactions on both $^{10,11}$B can act as interfering backgrounds, potentially impacting the accuracy of non-destructive assay techniques [1]. These reactions, initiated by naturally occurring alpha emitters, produce neutrons, secondary charged particles, and gamma rays that mimic or obscure the signatures of interest. In addition, the (a,p) channel on boron isotopes has applications in boron depth profiling of semiconductor materials [2]. However, experimental data for these reactions remain sparse at the energies of interest, limiting the reliability of simulations and nuclear data evaluations in applied nuclear science . This presentation will showcase the results from recent measurements of alpha-induced reactions on 10,11B isotopes at alpha energies ranging from 2-8 MeV. In addition, preliminary results from an *R*-matrix assessment of the data will be presented.

**References:**

[1] C.E. Romano, *et al*., $(\alpha, n)$ nuclear data scoping study. Technical Report. Oak Ridge National Laboratory (ORNL), (2020). URL: https://www.osti.gov/biblio/1771892

[2] E. Pitthan, *et al*., Assessing boron quantification and depth profiling of different boride materials using ion beams, Surface and Coatings Technology, 417, 2021.