

# Nuclear Astrophysics Underground – Status of CASPAR

*Thursday, May 16, 2024 11:00 AM (30 minutes)*

The closer accelerator-based experiments get to the burning regime of interest for stellar nucleosynthesis, the lower the reaction probability becomes. With this exponential drop off in cross-section the issue of background interference in signals becomes more problematic even with modern detection techniques. Above-ground experiments suffer from background interactions from cosmic ray interference at a typically greater rate than expected reaction signatures. To eliminate this cosmic interference the CASPAR accelerator laboratory is located at Sanford Underground Research Facility, studying nuclear reactions of astrophysical interest specifically  $(p,\gamma)$ ,  $(\alpha,\gamma)$  and  $(a,n)$  reactions. The accelerator system has been in a 2-year hibernation and is currently ramping up into production mode again. This talk will highlight recent measurements at CASPAR, and the future timeline for new experimental campaigns.

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