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Nuclear Astrophysics Underground –Status of CASPAR

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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. Aboveground 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,γ), (α,γ) 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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