

(α, n) neutron yields for rare-event search experiments: a collaborative effort to understand the backgrounds.

Thursday, 30 November 2023 15:00 (45 minutes)

Accurate assessments of (α, n) neutron production rates, energy spectra, and associated gamma-rays play a crucial role in understanding the underlying backgrounds in experiments dedicated to rare-event searches. This presentation discusses the importance of the radiogenic neutrons within the context of low-background experiments, shedding light on the challenges presented by (α, n) neutrons in this specific field and presenting the methodology employed to calculate this articulated background. An integral aspect of our efforts involves the establishment of a new (α, n) Working Group, a collaborative initiative that brings together members from high particle (mainly dark matter and neutrino) and nuclear physics communities. This collective endeavor signifies a shared commitment to addressing the main challenges inherent in the study of (α, n) neutrons and their impact on experiments, aiming to tackle challenges collectively and advance in the understanding of backgrounds. We offer insights into the group's comprehensive plans for finalizing a white paper on this subject.

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