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Neutron capture reactions in the stellar weak and main s-process regimes: AGa, ASe, AKr and ACe targets (R)

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The high-intensity quasi-Maxwellian neutron source based on the Soreq Applied Research Accelerator Facility (SARAF) [1] and the Liquid-Lithium Target (LiLiT) [2,3] were used to investigate neutron capture reactions in the weak and main s-process regimes. Experimental determinations of these reactions are important for helping to disentangle the different s-, r-, p-processes of nucleosynthesis and the characterization of their stellar sites. Our recently published value for the ⁷¹Ga(n, γ)⁷²Ga Maxwellian averaged cross section [4] is smaller and with smaller uncertainty than the experimental recommended value, which may have implications in network calculations such as presented by Pignatari et al. [5]. The ^ASe and ^ACe data are presently under final analysis and will be presented. Our ^AKr(n, γ) cross sections [6] are shown to have a strong impact on calculated abundances of krypton isotopes and neighboring nuclides, in some cases improving agreement between theory and observations.

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Session

Experimental Nuclear Astrophysics

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