

Gamma-induced reactions in explosive nucleosynthesis *

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Temperatures of several billion degrees Kelvin which can be reached e.g. in supernova explosions lead to a thermal Planck distribution of photons which can induce (γ, n) , (γ, p) , and (γ, α) reactions on atomic nuclei. These reactions play an especially important role in the p-process which synthesizes many nuclei on the proton rich side of the valley of stability. Measurements ask for intense and tunable photon sources in the relevant energy range which lies typically between about 2 and 10 MeV. Sources which are presently used for such studies include bremsstrahlung from thick radiators, bremsstrahlung photon taggers, and photons from Laser Compton Backscattering facilities [1].

The main achievements of the last decade and open questions will be summarized. New opportunities arise from planned or already operational new facilities to generate photons. In addition to γ -spectroscopy complementary tools like Atomic Mass Spectrometry could be exploited to detect the reaction products with highest sensitivity.

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[1] H. Utsunomiya et al., Nucl. Phys. **A777**, 1 (2006)