

P PROCESS OVERVIEW: (p, γ) AND (α , γ) REACTIONS IN REGULAR AND INVERSE KINEMATICS

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The astrophysical p process is responsible for the production of neutron-deficient nuclei (p nuclei) that are not accessible by the s and r processes. Many scenarios have been proposed for the production of these so-called p nuclei but to date the nucleosynthesis mechanism is still not well understood. In order to understand the synthesis of these rare isotopes and to identify the environment where they are produced it is critical to have accurate nuclear physics input in the astrophysical models. This includes masses, beta-decay properties and most importantly nuclear reaction rates. This talk will present an overview of the p process with an emphasis on the nuclear physics efforts related to this process. The large world-wide experimental effort to provide measurements of the relevant reactions will be presented. In addition, the talk will discuss the new focus of the community towards developments of inverse kinematics techniques aiming at future measurements of reactions with radioactive ion beams. Finally, the talk will report on the recent results from the group at Michigan State University on (p, γ) and (α , γ) reactions, in regular and inverse kinematics, measured at the University of Notre Dame.

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