

Nuclear astrophysics with light nuclei at GANIL

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The astrophysical phenomena such as Novae, Supernovae or X-ray bursts are among the most fascinating subjects. With the advent in our laboratories of accelerated radioactive beams, new opportunities of studies open up. Several examples of studies related to this field and performed at GANIL with radioactive nuclei will be presented. In particular, the measurement of radiative alpha capture reactions is of prime importance in the understanding of the origin of the p-nuclei. Exploratory experimental studies will be presented. The role of simultaneous two-proton capture reactions in extremely dense and hot environments is discussed. Other competing exotic reaction mechanisms, e.g. the reaction $(p,\gamma\beta)$, will be presented. With the objective to better understand the effects of the continuum, measurements of the properties of the unbound nuclei ^{19}Na , ^{16}F , ^{18}Na were performed. Electron screening effects in nuclear reactions and in the lifetime of nuclei is a subject of debate. A new experiment and new ideas will be presented.