Measurement of $\Gamma$ partial widths from carbon-12 excited states using CHIMERA

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Measuring very small $\Gamma$ partial widths of carbon-12 from the Hoyle and the 9.6 MeV states above the particle emission threshold are of astrophysical interest because only after such decay carbon-12 is formed after a triple alpha process [1]. In the reaction $\alpha + 12C \rightarrow \alpha + (12C^* + \gamma)$ we used a multi-particle coincidence technique, developed with 4 multi-detector CHIMERA, in order to suppress the gamma background [2]. The CHIMERA data acquisition system for CsI was updated using the GET [3] digital electronics. Details of the suppression method and first results of the analysis will be presented.

References