

Measurement of Γ partial widths from carbon-12 excited states using CHIMERA

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Measuring very small 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 $\alpha + {}^{12}\text{C} \rightarrow \alpha + ({}^{12}\text{C}^* + \gamma)$ we used a multi-particle coincidence technique, developed with 4π 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

- [1] F.Herwig, S.M. Austin and J.C. Lattanzio Phys. Rev. C 73 (2006) 025802.
- [2] Giuseppe Cardella small Γ_γ et al. A new method for the determination of very partial widths. 2017:EPJ Web Conf.
- [3] E.C. Pollacco et al. NIMA Volume 887, 11 April 2018, Pages 81-93.

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