

²⁶Al yields from massive single and binary stars

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Aluminium-26, a radioactive isotope with a half life of 0.72 Myr, was present in the early Solar System, as inferred from ²⁶Mg excess in meteorites, see e.g. [1]. It is also detected in the Galaxy via γ -ray observations from COMPTEL and INTEGRAL, see [2]. While it is known that ²⁶Al is produced in stars, many uncertainties are left related to the production sites and the nuclear physics input. Past research has focused mostly on yields of ²⁶Al from massive single stars, both rotating and non-rotating, including their winds and supernova explosions, see [3], [4], [5], and [6]. Here we present my planned research that will focus on the yields from massive star winds, primarily Wolf-Rayet stars ($\gtrsim 30M_{\odot}$), both single and in binary systems, and on the yields from non-conservative mass transfer in binary systems with primary masses $\gtrsim 15M_{\odot}$. The final goal is to discover the impact of massive binary stars on the galactic abundance of ²⁶Al and on the origin of the ²⁶Al in the early Solar System.

References

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