

Aluminium-26 from massive binary stars

Hannah E. Brinkman¹, C. L. Doherty^{1,2}, Ertao Li³, Maria Lugaro^{1,2}

¹ *Konkoly Observatory, Budapest, Hungary*

² *Monash University, Melbourne, Australia*

³ *College of Physics & Energy, Shenzhen University, Shenzhen, China*

Aluminium-26, a radioactive isotope with a half life of 0.72 Myr, was present in the early Solar System, as inferred from Magnesium-26 excess in meteorites. It is also detected in the Galaxy via gamma-ray observations from COMPTEL and INTEGRAL. While it is known that Al-26 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 Al-26 from massive single stars, both rotating and non-rotating, including their winds and supernova explosions. We focus on the yields from massive star winds, primarily Wolf-Rayet stars with masses of 30 Msun or larger, both single and in binary systems, and on the yields from non-conservative mass transfer in binary systems with primary masses starting at 15 Msun. The final goal is to discover the impact of massive binary stars on the galactic abundance of Al-26 and on the origin of the Al-26 in the early Solar System. I will present the first results of our research, focusing on a 20 Msun star and a 18+20 Msun binary system.