Measurement of ^{26}Al(n,p) and ^{26}Al(n,α) Reaction Rates in Supernova Temperatures

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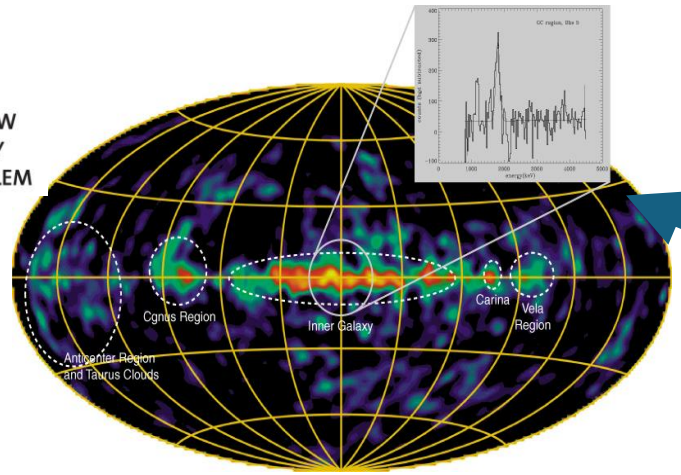
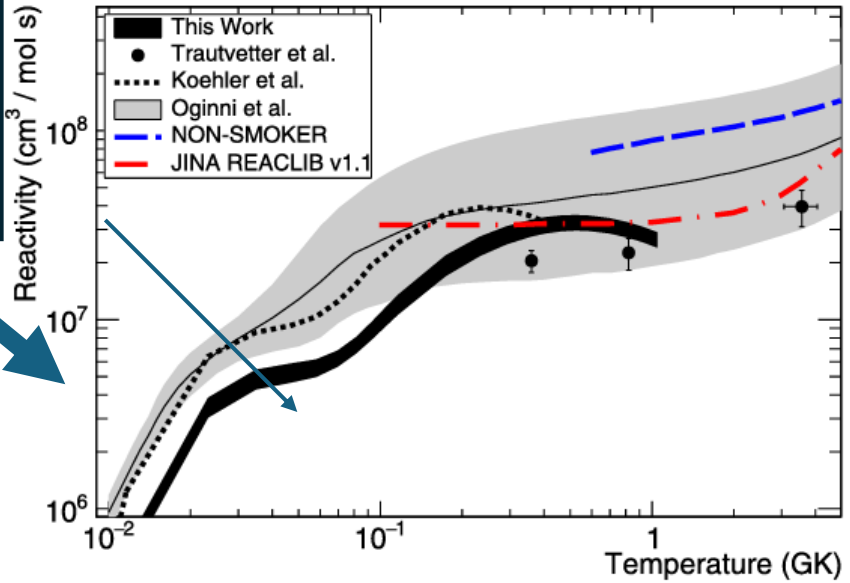


^{26}Al is a crucial element for cosmic nucleosynthesis.

Lack of data at supernova temperatures (1.5-3.5 GK).



C. Lederer-Woods *et al.* (n_TOF Collaboration) Phys. Rev. C **104**, L022803 (2021).

^{26}Al(n,p)

- **Current rate uncertainty about a factor of 6[1].**
- **A factor of 2 results in a factor of 40% in final ^{26}Al abundance[2].**

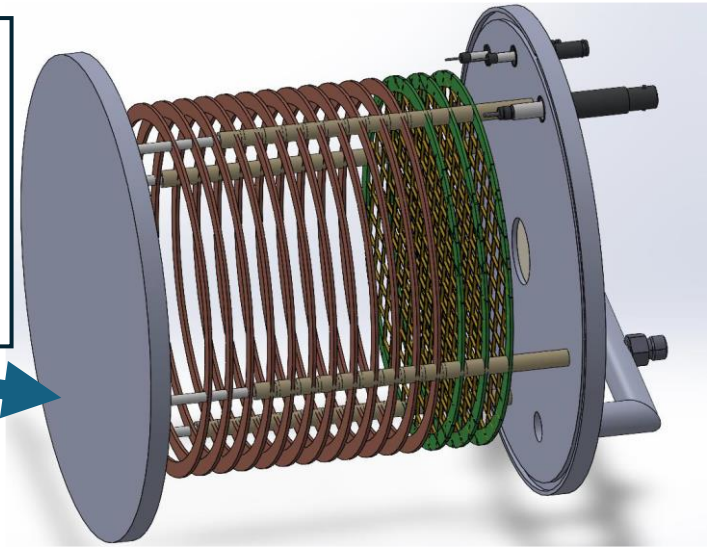
^{26}Al(n,α)

- **Current rate uncertainty about a factor of 3[1].**
- **A factor of 10 results in a factor of 45% in final ^{26}Al abundance[2].**

Expected Results

- **Reducing the rate uncertainties to 25% will have a tremendous impact on the ^{26}Al abundance calculations.**

- **^{7}Li(p,n) reaction used as a neutron source.**
- **Neutron intensity of 10^9 n/s.**
- **Micromegas detector.**



[1]B. M. Oginni, C. Iliadis, A. E. Champagne, Phys. Rev. C 83 (2011).
[2]C. Iliadis, A. Champagne, A. Chieffi, M. Limongi, , Astrophys. Journal, Suppl. Ser. 193 (1) (2011).