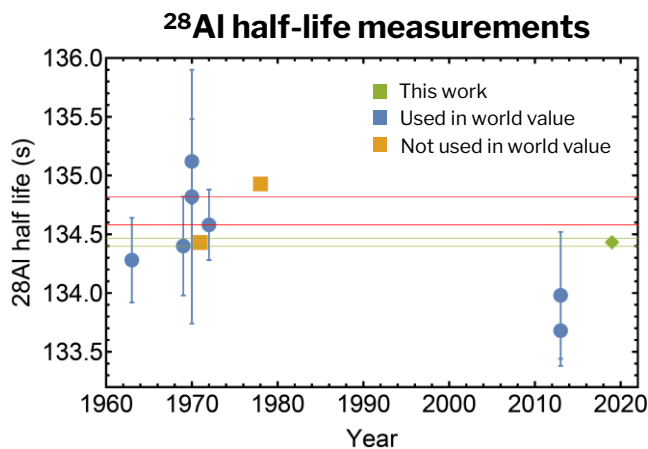


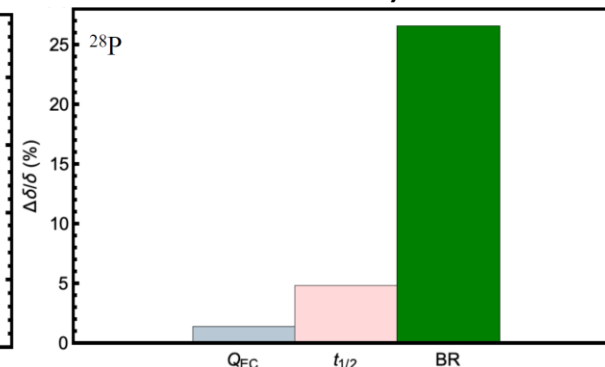
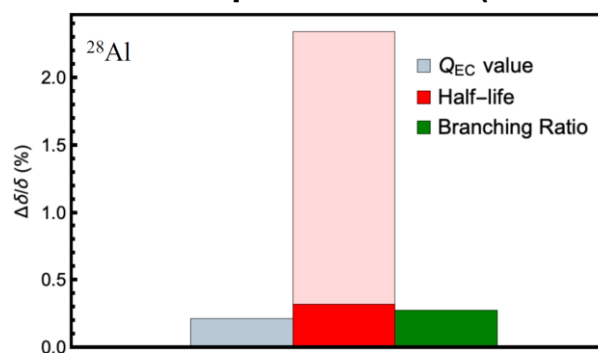
^{28}Al Half-life Measurement at the NSL



- The half-life of ^{28}Al was measured for the **first time using a radioactive ion beam** at the **TwinSol facility of the Nuclear Science Laboratory** of the University of Notre Dame. The new result, $t_{1/2} = \mathbf{134.432(34) \text{ s}}$, is consistent with most of the previously reported ^{28}Al half-life values except for one highly discrepant measurement and may warrant another independent measurement. New result establishes a revised world average half-life of **134.430(16) s**.
- The mirror asymmetry parameter for the ^{28}Al (β^-) $^{28\text{m}}\text{Si}$ and ^{28}P (β^+) $^{28\text{m}}\text{Si}$ decays is $\delta = \mathbf{-3.5(10)\%}$, which is still negative and inconsistent with nuclear structure calculations.
- ^{28}P decay is now the dominant uncertainties in δ . New precision measurements are needed to confirm the negative value of the asymmetry parameter.



Impact of experimental uncertainties on asymmetry parameter $\Delta\delta/\delta$ (with new ^{28}Al half-life in dark red)



B. Liu, M. Brodeur, D.W. Bardayan, F.D. Becchetti, C. Boomershine, D.P. Burdette, L. Caves, O. Olivas-Gomez, S.L. Henderson, J.J. Kolata, J. Long, A.D. Nelson, P.D. O'Malley, A. Pardo, R. Zite, Phys. Rev. C, **112**, 045504 (2025)

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