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# Improved experimental determination of the branching ratio for beta-delayed alpha decay of N-16

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While the  $\text{C-12}(\alpha, \gamma)\text{O-16}$  reaction plays a central role in nuclear astrophysics, the cross section is too small at the energies relevant to stellar helium burning to be directly measured in the laboratory. The beta-delayed alpha spectrum of N-16 can be used to constrain the astrophysical S-factor, but with this approach the S-factor becomes strongly correlated with the assumed alpha-decay branching ratio. Using two different experimental techniques, we have obtained consistent values for this branching ratio which, however, deviate significantly from the accepted value. Here, we report on our findings and discuss the implications for the determination of the astrophysical S-factor of the  $\text{C-12}(\alpha, \gamma)\text{O-16}$  reaction.

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