

$^2\text{H}(^{32}\text{S},\text{p}\gamma)$ 1973Wa10,1977He12

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 199,1 (2025)	30-Sep-2024

1973Wa10: E=54.6 MeV ^{32}S beam was produced from the BNL MP-tandem Van de Graaff facility. Target was 200 $\mu\text{g}/\text{cm}^2$ TiD prepared by evaporating titanium onto the target backings in a deuterium atmosphere. γ rays were detected with a 35 cm^3 Ge(Li) detector with FWHM=2 keV for 656-keV γ -rays. Measured E_γ , Doppler-shift attenuation. Deduced $T_{1/2}$ of 840 level.

Comparisons with available data.

1977He12 (also **1974He09,1975He25**): E=38 MeV ^{32}S beam of 300nA was produced from the Utrecht E(n) tandem accelerator. Target was 200 $\mu\text{g}/\text{cm}^2$ TiD on 0.3 mm backings. Charged particles were detected with an annular Si counter (FWHM=100 keV for protons) and γ rays were detected with a 25% Ge(Li) detector. Measured E_γ , Doppler-shift attenuation. Deduced $T_{1/2}$.

1977He12 supersede **1975He25** and **1974He09**.

 ^{33}S Levels

E(level) [†]	$T_{1/2}$ [‡]	Comments
0.0		
840.4	1.19 ps 7	$T_{1/2}$: from $\tau=1.72$ fs 10, weighted average 2.0 ps 3 (1973Wa10) and 1.69 ps 10 (1977He12).
2312.1	140 fs 18	$T_{1/2}$: from $\tau=202$ fs 26 in 1977He12 , reinterpretation of the data from 1975He25 ($\tau=206$ fs 8).

[†] From E_γ data.

[‡] From DSAM. For values quoted from **1977He12**, a 5% uncertainty due to stopping power theory as stated in the paper has been added in quadrature to the reported uncertainty which is statistical only. Results in **1977He12** are reinterpretation of the data from their earlier studies in **1975He25** and **1974He09**.

 $\gamma(^{33}\text{S})$

E_γ [†]	$E_i(\text{level})$	E_f
840.4	840.4	0.0
1471.7	2312.1	840.4

[†] From **1975He25**.

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