$$^1\mathrm{H}(^{33}\mathrm{Mg},^{33}\mathrm{Mg}'\gamma),(^{34}\mathrm{Mg},^{33}\mathrm{Mg}\gamma) \quad \textbf{2006El03,2006FuZX}$$

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 112, 1393 (2011)	31-Mar-2011

Includes He(^{33}Mg,^{33}Mg$'\gamma$).

Beam=^{33}Mg, target=liquid hydrogen.

2006El03: ^{33}Mg particles produced by fragmentation of ^{40}Ar beam at 94 MeV/nucleon hitting a ^{181}Ta target. The fragments were separated by RIPS fragment separator. The secondary beam of ^{33}Mg at 50 MeV/nucleon hit a liquid hydrogen target. The reaction products and scattered particles were detected and identified by a parallel-plate avalanche counter (PPAC) and a silicon detector telescope. Time-of-flight method used for atomic charge selection. The γ rays measured with an array of 146 NaI(Tl) detectors surrounding the target. Deduced mass deformation and neutron deformation parameters.

2006FuZX: ^{33}Mg particles produced by fragmentation of ^{40}Ar beam at 63 MeV/nucleon hitting carbon or beryllium target. The fragments were separated by RIPS fragment separator. The secondary beam of ^{33}Mg at 40 MeV/nucleon hit helium target. The reaction products and scattered particles were detected and identified by a parallel-plate avalanche counter (PPAC) and a silicon detector telescope. Time-of-flight method used for atomic charge selection. The γ rays measured with an array of NaI(Tl) detectors surrounding the target. The γ-ray peaks reported at 299.4 11 and 483.6 10.

^{33}Mg Levels

E(level)	J$^{\pi}$[†]	Comments
0	(5/2$^+$)	J$^{\pi}$: 3/2$^-$ in Adopted Levels.
483.6	(7/2$^+$)	J$^{\pi}$: (3/2$^-$) in Adopted Levels.
		β_{mass}=0.47 8, β_{n}=0.46 10.
561 17		

[†] Assumed assignments by 2006El03, considering the g.s. and 484 level to have the same parity as proposed by 2002Pr09 in ^{197}Au(^{33}Mg,^{33}Mg$'\gamma$), however, 2002Pr09 assigned 3/2$^+$ to g.s.

$\gamma(^{33}$Mg)

E$_\gamma$	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Comments
[x]299.4 11					E$_\gamma$: from 2006FuZX, possibly the same as the unplaced 297.9γ reported in ^{33}Na decay (2001Nu02).
483.6 17	483.6	(7/2$^+$)	0	(5/2$^+$)	E$_\gamma$: from 2006FuZX. Other: 484 20 (2006El03). σ=33 mb 10 in (p,p$'$).
561 17	561		0	(5/2$^+$)	E$_\gamma$: from 2006El03, possibly the same as 546.2γ in ^{33}Na β^- decay. This peak was detected in neutron knockout channel: ^{1}H(^{34}Mg,^{33}Mgγ).

[x] γ ray not placed in level scheme.

^{1}H(^{33}Mg,^{33}Mg′γ),(^{34}Mg,^{33}Mgγ)   2006El03,2006FuZX

Level Scheme

$^{33}_{12}$Mg$_{21}$

^{1}H(^{33}Mg,^{33}Mg′γ),(^{34}Mg,^{33}Mgγ)   2006El03,2006FuZX