^{9}Be(^{33}Na,^{32}Neγ) 2019Mu03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

Includes ^{9}Be(^{34}Mg,^{32}Neγ).

2019Mu03: ^{33}Na and ^{34}Mg cocktail beams with midtarget E=221 and 235 MeV/nucleon, respectively, are produced by projectile fragmentation of a 345 MeV/nucleon primary beam of ^{48}Ca from the RIBF at RIKEN, on a 15-mm-thick rotating Be target. Fragments were separated by the BigRIPS separator and identified by tof-Bρ-ΔE method. The secondary target was 1032 mg/cm^2 solid Be. Reaction products were analyzed and identified with the ZeroDegree spectrometer. γ rays were detected with the DALI2 spectrometer consisting of 186 NaI(Tl) crystals surrounding the target. Measured Eγ, Iγ, $\gamma\gamma$-coin, cross sections. Deduced levels, J, π, $R_{4/2}$. Comparisons with shell-model and eikonal reaction dynamical calculations.

^{32}Ne Levels

σ_{-1p} and σ_{-2p} in comments denote one-proton and two-proton knockout cross sections for (^{33}Na,^{32}Ne) and (^{34}Mg,^{32}Ne), respectively. The inclusive cross sections are σ_{-1p}=4.3 mb *5* and σ_{-2p}=144 μb *15*.

Note that in Table II and the text, the authors refer to the one-proton knockout cross section as ^{9}Be(^{33}Mg,^{32}Ne) which is a typo as confirmed by second author in an email reply to the evaluator on March 4, 2019.

E(level)†	J$^\pi$‡	Comments
0	0$^+$	σ_{-1p}=1.4 mb *7*, σ_{-2p}=97 μb *14*.
709 *12*	(2$^+$)	σ_{-1p}=2.2 mb *6*, σ_{-2p}=24 μb *9*.
2119 *19*	(4$^+$)	σ_{-1p}=0.72 mb *3*, σ_{-2p}=23 μb *5*.

† From Eγ.

‡ As given in 2019Mu03 for excited states, based on systematics of neighboring even-even nuclei of Si, Mg and Ne, and theoretical predictions.

γ(^{32}Ne)

Eγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
709 *12*	709	(2$^+$)	0	0$^+$
1410 *15*	2119	(4$^+$)	709	(2$^+$)

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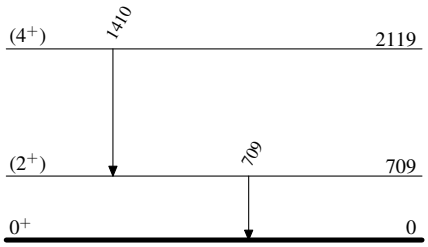
Level Scheme



$^{32}_{10}Ne_{22}$