Adopted Levels, Gammas

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

Q(β^-)=18360 *syst*; S(n)=2250 *syst*; S(p)=27130 *syst*; Q(α)=−17510 *syst* 2021Wa16
ΔQ(β^-)=500, ΔS(n)=570, ΔS(p)=730, ΔQ(α)=860 (syst,2021Wa16).
S(2n)=2420 *560*, Q(β^-n)=16680 *500* (syst,2021Wa16).
This nuclide is of possible relevance to "island of inversion" near N=20.
Other measurements:
1990Gu02: first identification and formation of ^{32}Ne nuclide in ^{181}Ta(^{48}Ca,X) reaction at E=2112 MeV; CERN-ISOLDE facility.
1991Mu19: ^{181}Ta(^{48}Ca,X) E=44 MeV/nucleon at LISE facility.
1997Sa14: ^{181}Ta(^{48}Ca,X) E=70 MeV/nucleon at RIKEN facility.
2002LuZT: ^{181}Ta(^{48}Ca,X) E=59.8 MeV/nucleon.
Additional information 1.
Structure calculations:
2022Gu11: calculated single-particle level energies.
2022Su17: calculated binding energy, quadrupole deformation.
2022Yu07,2021In02: calculated deformation parameter.
2020Mi15: calculated level energy, S(2n), B(E2).
2020Ts03,2018Ji07,2018Ma13,2016Ki19,2015Me06: calculated level energies, J, π, B(E2).

^{32}Ne Levels

Cross Reference (XREF) Flags

A ^{9}Be(^{33}Na,^{32}Neγ)
B C(^{32}Ne,^{32}Ne$'\gamma$)

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0	0^+	4.1 ms *7*	AB	%β^-=100; %β^-n=? $T_{1/2}$: weighted average of 4.5 ms *7* (2022Cr03) and 3.5 ms *9* (1998NoZW, tentative result). Calculated $T_{1/2}$=15 ms (2019Mo01), 6.7 ms (2021Mi17). Calculated %β^-n=75, %β^-2n=4, %β^-3n=0 (2019Mo01). Calculated %β^-n=85.2, %β^-2n=3.9, %β^-3n=2.9, %β^-4n=0.015 (2021Mi17).
717 *9*	(2^+)		AB	XREF: A(709)
2127 *18*	(4^+)		A	

† From Eγ data.
‡ From 2019Mu03 for excited states, based on systematics of neighboring even-even nuclei of Si, Mg and Ne, and theoretical predictions.

γ(^{32}Ne)

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Comments
717	(2^+)	717 *9*	100	0	0^+	E_γ: weighted average of 709 *12* from (^{33}Na,^{32}Neγ) and 722 *9* from (^{32}Ne,^{32}Ne$'\gamma$).
2127	(4^+)	1410 *15*	100	717	(2^+)	E_γ: from (^{33}Na,^{32}Neγ).

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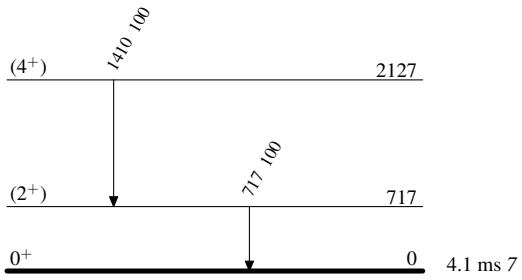
Level Scheme

Intensities: Relative photon branching from each level



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