^{1}H(^{63}V,p′γ) 2021Ju04

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 196,17 (2024)	30-Sep-2023

Adapted from the XUNDL dataset for 2021Ju04 compiled by E.A. McCutchan (NNDC,BNL), July 22, 2021.

2021Ju04: ^{63}V beam was produced through ^{9}Be(^{70}Zn,X) reaction with 345 MeV/nucleon ^{70}Zn primary beam from the RIBF facility on a 10-mm thick ^{9}Be target at RIKEN. Fragments were separated with the BigRIPS separator with the Bρ-ΔE-tof method. The secondary target was the MINOS liquid hydrogen. γ rays were detected using the DALI2^{+} array consisting of 226 NaI(Tl) scintillator; beam-like recoils were analyzed with the SAMURAI spectrometer. Measured Eγ, Iγ, recoil-γ-coin. Deduced levels.

^{63}V Levels

E(level)[†]	Jπ[‡]
(0.0[#])	(3/2$^-$)[#]
(0.0+y[#])	(5/2$^-$)[#]
0.0+x[#]	(7/2$^-$)[#]
x+696 *8*	(11/2$^-$)
x+889 *16*	(9/2$^-$)

† From Eγ, unless otherwise noted.

‡ Proposed by 2021Ju04 from a comparison of measured γ-ray cross sections and level scheme with shell-model calculations (2021Ju04).

Levels are proposed by 2021Ju04 based on shell-model calculations. Authors claims that the observed γ rays cannot be associated with the 5/2$^-$ and 7/2$^-$ excitations, because the calculated cross-sections are about an order of magnitude larger than the measured values, while the theoretical 9/2$^-$ and 11/2$^-$ levels seem to be very good candidates for the assignment of observed γ transitions.

γ(^{63}V)

2021Ju04 additionally observed gamma transitions at 1153 *21* and 1544 *26*, however, the statistical confidence of the peaks was below the 3σ limit of unambiguous existence.

Eγ	Iγ	E_i(level)	J^π_i	E_f	J^π_f	Comments
696 *8*	57 *24*	x+696	(11/2$^-$)	0.0+x	(7/2$^-$)	γ-ray production σ=0.14 mb *6*.
889 *16*	100	x+889	(9/2$^-$)	0.0+x	(7/2$^-$)	γ-ray production σ=0.24 mb *7*.

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Level Scheme

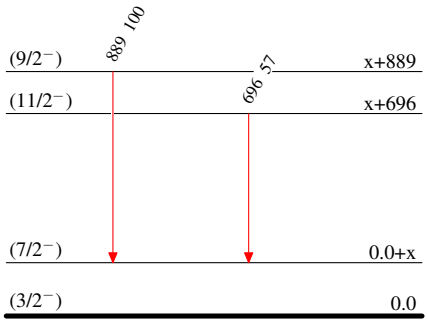
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{63}_{23}V_{40}$