## Adopted Levels, Gammas

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

Q($\beta^-$)=−13420 *syst*; S(n)=12850 *syst*; S(p)=2220 *40*; Q($\alpha$)=−2130 *40* 2021Wa16
ΔQ($\beta^-$)=200, ΔS(n)=150 (syst,2021Wa16).
S(2n)=29270 *300* (syst), S(2p)=5150 *40*, Q($\varepsilon$p)=6960 *40*, Q($\varepsilon$)=9630 *40* (2021Wa16).
Mass measurement: 2011Tu02.
Other measurements:
1993Wi03,1993Wi18: $^{58}$Ni($^{78}$Kr,X) E=75 MeV $^{78}$Kr beam was produced from the K1200 cyclotron at NSCL. Fragments were separated with the A1200 mass separator and implanted into a Si detector telescope surrounded by two thin scintillator $\beta$ detectors. Measured fragment-$\beta$(t). Deduced $T_{1/2}$. See also 1991Mo10 with E=65 MeV/nucleon at NSCL.
Additional information 1.
2014Ro14: Ni($^{78}$Kr,X) E=70 MeV/nucleon $^{78}$Kr beam was produced at GANIL. Fragments selected with the LISE3 separator, identified by time-of-flight and energy loss and implanted into a set of four Si detectors (an energy loss ΔE detector, a degrader, DSSD and Si(Li)) for particles surrounded by four HPGe Clover detectors, three EXOGAM and one mini-clover Ge detector for $\gamma$ rays. Measured (fragment)$\beta$ and (fragment)$\gamma$ correlations. Deduced $T_{1/2}$.
2017Ku12: Ni($^{64}$Zn,X) E=79 MeV/nucleon $^{64}$Zn beam was produced at GANIL. Fragments were selected with the LISE3 separator, identified by time-of-flight and energy loss using silicon ΔE detector and implanted into a double-sided silicon strip detector (DSSSD) surrounded by four HPGe Clover detectors (three EXOGAM clovers and a smaller Euroball clover) for $\gamma$-ray detection. Measured implant-$\beta$ correlations. Deduced $T_{1/2}$.
2020Gi02: $^{9}$Be($^{78}$Kr, X) E=350 MeV/nucleon $^{78}$Kr beam was produced at RIKEN. Fragments were selected with the BigRIPS and the ZDS separators and implanted into the WAS3ABi device consisting of 3 DSSSDs. $\gamma$ rays were detected with the EURICA array of Ge detectors. Measured implant-$\beta$-correlation. Deduced $T_{1/2}$.
Theoretical calculations:
2021Kl02, 2019Zo02: calculated mass excess, S(p), S(2p).
2011Gu03: calculated rms radius.
2001Fi23: calculated levels, J, $\pi$, widths.
1997Or04: calculated binding energy.

### $^{63}$Ge Levels

Cross Reference (XREF) Flags

A $^{64}$Se $\varepsilon$p decay (22.6 ms)

| E(level) | J$^\pi$ | $T_{1/2}$ | XREF | Comments |
|---|---|---|---|---|
| 0 | (3/2$^-$) | 153.3 ms *6* | A | %$\varepsilon$+%$\beta^+$=100; %$\varepsilon$p=?<br>$T_z$=−1/2<br>J$^\pi$: 3/2$^-$ from systematics in 2021Ko07; mirror of 3/2$^-$ g.s. of $^{63}$Ga (2019Ru07). Other: 1/2$^-$ from theory in 2019Mo01.<br>$T_{1/2}$: weighted average of 153.3 ms *6* (2019Ru07), 153.6 ms *11* (2020Gi02), 150 ms *9* (2002Lo13,2002Bl17), 149 ms *4* (2014Ro14), and 156 ms *11* (2017Ku12). Other: 95 ms *+23−20* (1993Wi03,1993Wi18) is discrepant. |
| 417.5 *1* | | | A | |

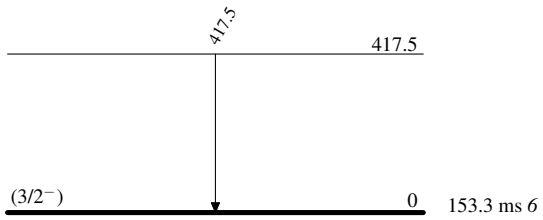
## Adopted Levels, Gammas (continued)

### γ($^{63}$Ge)

| $E_i$(level) | $E_\gamma$ | $E_f$ | $J^\pi_f$ | Comments |
|---|---|---|---|---|
| 417.5 | 417.5 *1* | 0 | (3/2$^-$) | $E_\gamma$: from $^{64}$Se εp decay (2019Ru07). |

## Adopted Levels, Gammas

### Level Scheme




$^{63}_{32}Ge_{31}$