

(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21

| Type | Author | History Citation | Literature Cutoff Date |
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| Full Evaluation | Huang Xiaolong | NDS 108, 1093 (2007) | 1-Jan-2006 |

Main references: 1991Wa14, 1990Br10, 1993Mo19, 1993Da04, 1994CI02, 1995Va32, 1997Az05 (also 1997Bo28), 1998Va18, 2001Hu18, 2001Ro20, 2002Ro30, 2005Wi21.

2005Wi21: $^{170}\text{Er}(^{30}\text{Si},4n\gamma)$, E=144 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, using time-correlated spectroscopy and Euroball IV array. An inner ball of 210 BGO scintillators was used as a multiplicity filter. Deduced superdeformed band excitation energy.

2002Ro30: $^{170}\text{Er}(^{30}\text{Si},4n\gamma)$, E=144 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$, lifetimes by Doppler Shift Attenuation Method using EUROBALL-IV spectrometer comprised of 30 Compton-suppressed conventional Ge detectors, 26 clover and 15 cluster composite Ge detectors (with a total of 230 individual functioning Ge detector crystals). An inner ball of 210 BGO scintillators was used as a multiplicity filter.

2001Ro20: $^{170}\text{Er}(^{30}\text{Si},4n\gamma)$ E=144 MeV. Measured γ , $\gamma\gamma$, $\gamma(\text{lin pol})$ of interband(SD) transitions using the clover detectors of EUROBALL IV array. Deduced evidence for octupole vibrational excitation in the superdeformed minimum of ^{196}Pb .

2001Hu18: $^{170}\text{Er}(^{30}\text{Si},4n\gamma)$ E=144 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin, $\gamma(\text{lin pol})$ of interband(SD) transitions using the spectrometer arrays GAMMASPHERE and euroball. Deduced superdeformed ^{196}Pb .

1998Va18: $^{176}\text{Yb}(^{26}\text{Mg},6n\gamma)$ E=135 MeV. Gammasphere array of 98 large volume Compton-suppressed Ge detectors. Measured lifetimes by DSAM (line shape and centroid-shift methods). Deduced Q(intrinsic) for SD-1 band.

1995Va32: $^{170}\text{Er}(^{30}\text{Si},4n\gamma)$ E=143 MeV. Measured γ , $\gamma\gamma$, with gasp array of 40 Compton-suppressed detectors.

1997Az05 (also 1997Bo28): $^{186}\text{W}(^{16}\text{O},6n\gamma)$ E=110 MeV. Measured $E\gamma$, $\gamma\gamma$ coin, $\gamma\gamma(\theta)$ (DCO) using Eurogam II array of Ge detectors. Deduced four SD bands.

1994CI02: $^{186}\text{W}(^{18}\text{O},8n\gamma)$ E=113 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma\gamma$, SD band using EUROGAM array (43 detectors).

1993Da04: $^{184}\text{W}(^{16}\text{O},4n\gamma)$ E=98 MeV and $^{186}\text{W}(^{16}\text{O},6n\gamma)$ E=120 MeV.

1993Mo19: $^{170}\text{Er}(^{30}\text{Si},4n\gamma)$ E=142-151 MeV. Measured γ , $\gamma\gamma$, $\gamma\gamma(\theta)$, $T_{1/2}$ by DSA method.

1990Br10,1991Wa14: $^{176}\text{Yb}(^{24}\text{Mg},4n\gamma)$ E=122 MeV; $^{176}\text{Yb}(^{26}\text{Mg},6n\gamma)$ E=135 MeV. HERA spectrometer. Twofold coincidences with sum energy $h > 3.25$ MeV and multiplicity $K > 8$. Identified superdeformed band.

Theoretical treatment of SD bands: 1992Sk01, 1992Wu01, 1992Wu05, 1991Sa12, 1990Ho13, 1990Be37, 1990Ja03.

^{196}Pb Levels

| E(level) [†] | J ^π | T _{1/2} | Comments |
|-------------------------|--------------------------------|------------------------|---|
| 1797.51 ^a 14 | 5 ^{-a} | 140 ^a ns 14 | |
| 2333.9 ^a 3 | (8 ⁻) ^a | ^a | |
| 5859 [‡] 2 | 6 ⁺ | | J ^π : from 1997Az05,2005Wi21. E(level): From 2005Wi21. |
| 6030.40 [‡] 20 | 8 ⁺ | | |
| 6246.0 [‡] 3 | 10 ⁺ | | |
| 6505.4 [‡] 4 | 12 ⁺ | | |
| 6808.4 [‡] 4 | 14 ⁺ | | |
| 6846.1 [#] 9 | (8 ⁻) | | J ^π : from 1997Az05. |
| 6944.8 [@] 11 | (9 ⁻) | | J ^π : from 1997Az05. |
| 7050.6 [#] 14 | (10 ⁻) | | |
| 7154.2 [‡] 5 | 16 ⁺ | | |
| 7172.1 [@] 11 | (11 ⁻) | | |
| 7298.5 [#] 17 | (12 ⁻) | | |
| 7440.5 [@] 8 | (13 ⁻) | | |
| 7541.8 [‡] 5 | 18 ⁺ | 0.46 ^b ps 8 | T _{1/2} : 0.53 ps 9 from gating above (2002Ro30). Q(transition)=20.1 17, 18.6 16(2002Ro30). |
| 7587.9 [#] 20 | (14 ⁻) | | |
| 7749.5 [@] 8 | (15 ⁻) | | |

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(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21 (continued) ^{196}Pb Levels (continued)

| E(level) [†] | J ^{π} | T _{1/2} | Comments |
|-----------------------------|-------------------------------|--------------------------|--|
| 7917.6 [#] 22 | (16 ⁻) | | |
| 7970.3 [‡] 6 | 20 ⁺ | 0.23 ^b ps 4 | T _{1/2} : 0.27 ps 5 from gating above (2002Ro30). Q(transition)=21.9 18, 20.1 18(2002Ro30). |
| 8098.8 [@] 8 | (17 ⁻) | | |
| 8144.4 ^{&} 10 | (17 ⁻) | | J ^{π} : from 1997Az05. |
| 8287.1 [#] 25 | (18 ⁻) | | |
| 8439.7 [‡] 6 | 22 ⁺ | 0.152 ^b ps 28 | T _{1/2} : 0.187 ps 35 from gating above (2002Ro30). Other: 0.23 ps 10 from line-shape analysis (1993Mo19). Q(transition)=17.3 +61-30 (1993Mo19), 21.2 17, 19.2 18(2002Ro30). |
| 8487.4 [@] 9 | (19 ⁻) | | |
| 8549.6 ^{&} 10 | (19 ⁻) | | |
| 8696 [#] 3 | (20 ⁻) | | |
| 8915.0 [@] 9 | (21 ⁻) | | |
| 8948.2 [‡] 6 | 24 ⁺ | 0.097 ^b ps 14 | T _{1/2} : 0.118 ps 21 from gating above (2002Ro30). Other: 0.12 ps +3-5 from line-shape analysis (1993Mo19). Q(transition)=19.1 +65-18 (1993Mo19), 21.9 15, 20.2 18(2002Ro30). |
| 8991.6 ^{&} 14 | (21 ⁻) | | |
| 9144 [#] 3 | (22 ⁻) | 0.32 ^b ps 8 | Q(transition)=16.7 20 (2002Ro30). |
| 9380.9 [@] 10 | (23 ⁻) | | |
| 9471.6 ^{&} 17 | (23 ⁻) | | |
| 9495.1 [‡] 7 | 26 ⁺ | 0.076 ^b ps 14 | T _{1/2} : 0.090 ps 14 from gating above (2002Ro30). Other: 0.08 ps +5-2 from line-shape analysis (1993Mo19). Q(transition)=19.6 +30-40 (1993Mo19), 20.2 18, 19.2 16(2002Ro30). |
| 9630 [#] 3 | (24 ⁻) | 0.152 ^b ps 35 | Q(transition)=19.8 22 (2002Ro30). |
| 9884.0 [@] 14 | (25 ⁻) | | |
| 9990.6 ^{&} 20 | (25 ⁻) | | |
| 10079.3 [‡] 7 | 28 ⁺ | 0.055 ^b ps 9 | T _{1/2} : 0.053 ps 9 from gating above (2002Ro30). Q(transition)=20.4 16, 21.0 18 (2002Ro30). |
| 10152 [#] 4 | (26 ⁻) | 0.111 ^b ps 21 | Q(transition)=19.3 19 (2002Ro30). |
| 10424.2 [@] 17 | (27 ⁻) | | |
| 10547.6 ^{&} 22 | (27 ⁻) | | |
| 10699.9 [‡] 7 | 30 ⁺ | 0.052 ^b ps 9 | T _{1/2} : 0.069 ps 22 from gating above (2002Ro30). Q(transition)=18.2 16, 15.7 25 (2002Ro30). |
| 10710 [#] 4 | (28 ⁻) | 0.068 ^b ps 11 | Q(transition)=20.6 17 (2002Ro30). |
| 11000.0 [@] 20 | (29 ⁻) | | |
| 11304 [#] 4 | (30 ⁻) | 0.055 ^b ps 12 | Q(transition)=19.6 21 (2002Ro30). |
| 11354.8 [‡] 8 | 32 ⁺ | 0.026 ^b ps 4 | T _{1/2} : 0.029 ps 5 from gating above (2002Ro30). Q(transition)=22.5 18, 21.2 18 (2002Ro30). |
| 11610.8 [@] 23 | (31 ⁻) | | |
| 11934 [#] 4 | (32 ⁻) | | |
| 12043.6 [‡] 8 | 34 ⁺ | 0.032 ^b ps 7 | Q(transition)=17.8 20 (2002Ro30). |
| 12256.4 [@] 25 | (33 ⁻) | | |
| 12600 [#] 4 | (34 ⁻) | | |
| 12763.7 [‡] 10 | 36 ⁺ | | |
| 12936 [@] 3 | (35 ⁻) | | |
| 13515.8 [‡] 11 | 38 ⁺ | | |

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(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21 (continued) ^{196}Pb Levels (continued)

† From least-squares fit to E_γ 's. Uncertainties, when not quoted by the original authors, are assumed as: 0.5 keV for E_γ quoted to tenth of a keV, 2 keV for uncertain γ rays and 1 keV for others.

‡ Band(A): Yrast SD-1 band based on 6^+ (1997Az05,1995Va32,1994Cl02). Others: 2002Ro30, 2001Hu18, 2001Ro20, 1993Mo19, 1991Wa14, 1990Br10. Percent population=1.5 (1994Cl02) in $^{186}\text{W}(^{18}\text{O}, ^8\text{N}\gamma)$; 1.3 (1993Mo19) in $^{170}\text{Er}(^{30}\text{Si}, 4n\gamma)$.

Q(intrinsic)=19.5 +4-3 (centroid-shift method) (1998Va18), 20.9 20 (line shape analysis) (1998Va18), 18.3 30 (1993Mo19).

Band(B): SD-2 band based on (8^-) , $\alpha=0$ (1997Az05,1995Va32). Others: 2002Ro30, 2001Ro20, 2001Hu18. Population intensity=20% of SD-1 band (1997Az05), 35% of SD-1 band (1995Va32). SD-2 and SD-3 bands are probably signature partners.

@ Band(b): SD-3 band based on (9^-) , $\alpha=1$ (1997Az05,1995Va32). Other: 2001Hu18, 2001Ro20. Population intensity=20% of SD-1 band (1997Az05), 35% of SD-1 band (1995Va32). SD-2 and SD-3 bands are probably signature partners.

& Band(C): SD-4 band (1997Az05). Population intensity=5% of SD-1 band (1997Az05).

^a From Adopted Levels.

^b Doppler-shift line shape analysis (Gating below). Values for "gating above" are given under comments (2002Ro30).

| $\gamma(^{196}\text{Pb})$ | | | | | | | | |
|---------------------------|---------------------|--------------------|---------|--------------------|---------|------------|----------------------------|--|
| E_γ^\dagger | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. # | α^b | $I_{(\gamma+ce)}^\ddagger$ | Comments |
| 98 ^{ac} | 6944.8 | (9 ⁻) | 6846.1 | (8 ⁻) | | | | |
| 107 ^{ac} | 7050.6 | (10 ⁻) | 6944.8 | (9 ⁻) | | | | |
| 120 ^{ac} | 7172.1 | (11 ⁻) | 7050.6 | (10 ⁻) | | | | |
| 128 ^{ac} | 7298.5 | (12 ⁻) | 7172.1 | (11 ⁻) | | | | |
| 140 ^{ac} | 7440.5 | (13 ⁻) | 7298.5 | (12 ⁻) | | | | |
| 171.4 2 | 6030.40 | 8 ⁺ | 5859 | 6 ⁺ | | | 0.20 5 | E_γ : 169.9 3 (1993Mo19), 171.5 (1995Va32). |
| 204.5 | 7050.6 | (10 ⁻) | 6846.1 | (8 ⁻) | | | | |
| 215.6 2 | 6246.0 | 10 ⁺ | 6030.40 | 8 ⁺ | (E2) | 0.331 | 0.60 5 | ce(N)/($\gamma+ce$)=0.00699 11; ce(O)/($\gamma+ce$)=0.001268 19; ce(P+)/($\gamma+ce$)=6.59 $\times 10^{-5}$ 10 E_γ : 214.8 2 (1993Mo19), 215.5 (1995Va32). R(DCO)=1.37 28 (1993Mo19). |
| 226.7 | 7172.1 | (11 ⁻) | 6944.8 | (9 ⁻) | | | | |
| 247.9 | 7298.5 | (12 ⁻) | 7050.6 | (10 ⁻) | | | | |
| 259.5 2 | 6505.4 | 12 ⁺ | 6246.0 | 10 ⁺ | E2@ | 0.180 | 0.90 5 | ce(N)/($\gamma+ce$)=0.00369 6; ce(O)/($\gamma+ce$)=0.000673 10; ce(P+)/($\gamma+ce$)=3.83 $\times 10^{-5}$ 6 E_γ : 258.5 2 (1993Mo19), 259.6 (1995Va32). R(DCO)=1.35 19 (1993Mo19); POL=+0.6 3 (2001Ro20). |
| 267.7 | 7440.5 | (13 ⁻) | 7172.1 | (11 ⁻) | | | | |
| 289.4 | 7587.9 | (14 ⁻) | 7298.5 | (12 ⁻) | | | | |
| 303.0 2 | 6808.4 | 14 ⁺ | 6505.4 | 12 ⁺ | (E2) | 0.1123 | 0.95 5 | ce(N)/($\gamma+ce$)=0.00213 3; ce(O)/($\gamma+ce$)=0.000392 6; ce(P+)/($\gamma+ce$)=2.41 $\times 10^{-5}$ 4 R(DCO)=1.32 15 (1993Mo19). E_γ : 301.7 2 (1993Mo19), 302.8 (1991Wa14), 303.0 (1995Va32). |
| 308.3 | 7749.5 | (15 ⁻) | 7440.5 | (13 ⁻) | | | | |
| 329.7 | 7917.6 | (16 ⁻) | 7587.9 | (14 ⁻) | | | | |
| 345.8 2 | 7154.2 | 16 ⁺ | 6808.4 | 14 ⁺ | E2@ | 0.0767 | 1.00 5 | ce(N)/($\gamma+ce$)=0.001340 19; ce(O)/($\gamma+ce$)=0.000248 4; ce(P+)/($\gamma+ce$)=1.631 $\times 10^{-5}$ 23 E_γ : 344.9 2 (1993Mo19), 346.0 (1995Va32). R(DCO)=1.38 13 (1993Mo19); POL=+0.3 1 (2001Ro20). |
| 348.4 | 8098.8 | (17 ⁻) | 7749.5 | (15 ⁻) | | | | |
| 369.5 | 8287.1 | (18 ⁻) | 7917.6 | (16 ⁻) | | | | |
| 387.6& 2 | 7541.8 | 18 ⁺ | 7154.2 | 16 ⁺ | (E2) | 0.0561 | 1.05 5 | ce(N)/($\gamma+ce$)=0.000907 13; |

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(HI,xn γ):SD **1995Va32,1997Az05,2005Wi21 (continued)**

$\gamma(^{196}\text{Pb})$ (continued)

| E_γ [†] | E_i (level) | J_i^π | E_f | J_f^π | Mult. # | a^b | $I_{(\gamma+ce)}^\ddagger$ | Comments |
|-------------------------|---------------|--------------------|---------|--------------------|---------|--------|----------------------------|---|
| | | | | | | | | ce(O)/($\gamma+ce$)=0.0001689 24; ce(P+)/($\gamma+ce$)=1.174 $\times 10^{-5}$ 17 E_γ : 387.3 2 (1993Mo19), 388.1 (1995Va32). R(DCO)=1.40 12 (1993Mo19). |
| 388.2 | 8487.4 | (19 ⁻) | 8098.8 | (17 ⁻) | | | | |
| 405 ^a | 8549.6 | (19 ⁻) | 8144.4 | (17 ⁻) | | | | |
| 409.4 | 8696 | (20 ⁻) | 8287.1 | (18 ⁻) | | | | |
| 427.6 | 8915.0 | (21 ⁻) | 8487.4 | (19 ⁻) | | | | |
| 428.5 & 2 | 7970.3 | 20 ⁺ | 7541.8 | 18 ⁺ | (E2) | 0.0431 | 1.03 5 | ce(N)/($\gamma+ce$)=0.000650 10; ce(O)/($\gamma+ce$)=0.0001217 18; ce(P+)/($\gamma+ce$)=8.87 $\times 10^{-6}$ 13 E_γ : 428.1 2 (1993Mo19), 428.9 (1995Va32). R(DCO)=1.28 15 (1993Mo19). |
| 442 ^a | 8991.6 | (21 ⁻) | 8549.6 | (19 ⁻) | | | | |
| 447.8 | 9144 | (22 ⁻) | 8696 | (20 ⁻) | | | | |
| 466.2 | 9380.9 | (23 ⁻) | 8915.0 | (21 ⁻) | | | | |
| 469.4 & 2 | 8439.7 | 22 ⁺ | 7970.3 | 20 ⁺ | E2@ | 0.0343 | 1.00 5 | ce(N)/($\gamma+ce$)=0.000484 7; ce(O)/($\gamma+ce$)=9.12 $\times 10^{-5}$ 13; ce(P+)/($\gamma+ce$)=6.93 $\times 10^{-6}$ 10 R(DCO)=1.37 17 (1993Mo19); POL=+0.3 1 (2001Ro20). E_γ : 468.5 2 (1993Mo19), 469.5 (1993Da04), 469.7 (1995Va32). |
| 480 ^a | 9471.6 | (23 ⁻) | 8991.6 | (21 ⁻) | | | | |
| 485.3 | 9630 | (24 ⁻) | 9144 | (22 ⁻) | | | | |
| 503.1 | 9884.0 | (25 ⁻) | 9380.9 | (23 ⁻) | | | | |
| 508.5 & 2 | 8948.2 | 24 ⁺ | 8439.7 | 22 ⁺ | (E2) | 0.0282 | 0.85 5 | ce(N)/($\gamma+ce$)=0.000377 6; ce(O)/($\gamma+ce$)=7.14 $\times 10^{-5}$ 10; ce(P+)/($\gamma+ce$)=5.61 $\times 10^{-6}$ 8 E_γ : 508.1 2 (1993Mo19), 508.7 (1995Va32). R(DCO)=1.43 22 (1993Mo19). |
| 519 ^a | 9990.6 | (25 ⁻) | 9471.6 | (23 ⁻) | | | | |
| 522.6 | 10152 | (26 ⁻) | 9630 | (24 ⁻) | | | | |
| 540.2 | 10424.2 | (27 ⁻) | 9884.0 | (25 ⁻) | | | | |
| 546.9 & 2 | 9495.1 | 26 ⁺ | 8948.2 | 24 ⁺ | (E2) | 0.0238 | 1.00 5 | ce(N)/($\gamma+ce$)=0.000303 5; ce(O)/($\gamma+ce$)=5.75 $\times 10^{-5}$ 8; ce(P+)/($\gamma+ce$)=4.66 $\times 10^{-6}$ 7 E_γ : 546.4 2 (1993Mo19), 547.1 (1995Va32). I_γ : 0.53 9 (1993Mo19). R(DCO)=1.39 25 (1993Mo19). |
| 557 ^a | 10547.6 | (27 ⁻) | 9990.6 | (25 ⁻) | | | | |
| 558.2 | 10710 | (28 ⁻) | 10152 | (26 ⁻) | | | | |
| 575.8 | 11000.0 | (29 ⁻) | 10424.2 | (27 ⁻) | | | | |
| 584.2 & 2 | 10079.3 | 28 ⁺ | 9495.1 | 26 ⁺ | (E2) | 0.0205 | 0.75 5 | ce(N)/($\gamma+ce$)=0.000249 4; ce(O)/($\gamma+ce$)=4.76 $\times 10^{-5}$ 7; ce(P+)/($\gamma+ce$)=3.95 $\times 10^{-6}$ 6 I_γ : 0.41 6 (1993Mo19). R(DCO)=1.25 25 (1993Mo19). E_γ : 584.3 2 (1993Mo19), 583.4 (1991Wa14), 584.4 (1993Da04), 584.5 (1995Va32). |
| 594.1 | 11304 | (30 ⁻) | 10710 | (28 ⁻) | | | | |
| 610.8 | 11610.8 | (31 ⁻) | 11000.0 | (29 ⁻) | | | | |
| 620.6 & 2 | 10699.9 | 30 ⁺ | 10079.3 | 28 ⁺ | (E2) | 0.0179 | 0.65 5 | ce(N)/($\gamma+ce$)=0.000210 3; |

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(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21 (continued) $\gamma(^{196}\text{Pb})$ (continued)

| E_γ † | I_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. # | α^b | $I_{(\gamma+ce)}^\ddagger$ | Comments |
|-------------------|------------|---------------------|--------------------|---------|--------------------|---------|------------|----------------------------|---|
| | | | | | | | | | ce(O)/(γ +ce)= 4.01×10^{-5} 6; ce(P+)/(γ +ce)= 3.41×10^{-6} 5 R(DCO)=1.29 35 (1993Mo19). E_γ : 620.2 2 (1993Mo19), 619.1 (1993Da05), 619.6 (1991Wa14), 620.7 (1995Va32). I_γ : 0.36 8 (1993Mo19). |
| 630.0 | | 11934 | (32 ⁻) | 11304 | (30 ⁻) | | | | |
| 645.6 | | 12256.4 | (33 ⁻) | 11610.8 | (31 ⁻) | | | | |
| 654.9 & 3 | | 11354.8 | 32 ⁺ | 10699.9 | 30 ⁺ | | | 0.65 5 | E_γ : 654.5 3 (1993Mo19), 655.5 (1995Va32). I_γ : 0.15 3 (1993Mo19). |
| 665.2 | | 12600 | (34 ⁻) | 11934 | (32 ⁻) | | | | |
| 679.7 | | 12936 | (35 ⁻) | 12256.4 | (33 ⁻) | | | | |
| 688.8 & 3 | | 12043.6 | 34 ⁺ | 11354.8 | 32 ⁺ | | | 0.55 5 | E_γ : 688.6 3 (1993Mo19), 688.3 (1995Va32). I_γ : 0.14 4 (1993Mo19). |
| 720.1 & 5 | | 12763.7 | 36 ⁺ | 12043.6 | 34 ⁺ | | | 0.35 5 | E_γ : 720.7 (1995Va32). |
| 752.1 & 5 | | 13515.8 | 38 ⁺ | 12763.7 | 36 ⁺ | | | 0.20 5 | E_γ : 753.1 (1995Va32). |
| 794 ^{ac} | | 7298.5 | (12 ⁻) | 6505.4 | 12 ⁺ | | | | |
| 805 ^{ac} | | 7050.6 | (10 ⁻) | 6246.0 | 10 ⁺ | | | | |
| 815 ^{ac} | | 6846.1 | (8 ⁻) | 6030.40 | 8 ⁺ | | | | |
| 935 ^a | | 7440.5 | (13 ⁻) | 6505.4 | 12 ⁺ | (E1) @ | 0.00283 | | $\alpha(K)=0.00236$ 4; $\alpha(L)=0.000361$ 5; $\alpha(M)=8.33 \times 10^{-5}$ 12; $\alpha(N+..)=2.57 \times 10^{-5}$ 4 B(E1)= 1.0×10^{-4} 2 (2001Hu18,2001Ro20). |
| 941 ^a | | 7749.5 | (15 ⁻) | 6808.4 | 14 ⁺ | (E1) @ | 0.00279 | | $\alpha(K)=0.00233$ 4; $\alpha(L)=0.000357$ 5; $\alpha(M)=8.23 \times 10^{-5}$ 12; $\alpha(N+..)=2.54 \times 10^{-5}$ 4 B(E1)= 1.0×10^{-4} 2 (2001Hu18,2001Ro20). |
| 941 ^a | | 9380.9 | (23 ⁻) | 8439.7 | 22 ⁺ | (E1) @ | 0.00279 | | $\alpha(K)=0.00233$ 4; $\alpha(L)=0.000357$ 5; $\alpha(M)=8.23 \times 10^{-5}$ 12; $\alpha(N+..)=2.54 \times 10^{-5}$ 4 |
| 945 ^a | | 8098.8 | (17 ⁻) | 7154.2 | 16 ⁺ | (E1) @ | 0.00277 | | $\alpha(K)=0.00231$ 4; $\alpha(L)=0.000354$ 5; $\alpha(M)=8.16 \times 10^{-5}$ 12; $\alpha(N+..)=2.52 \times 10^{-5}$ 4 B(E1)= 1.0×10^{-4} 2 (2001Hu18,2001Ro20). |
| 945 ^a | | 8915.0 | (21 ⁻) | 7970.3 | 20 ⁺ | (E1) @ | 0.00277 | | $\alpha(K)=0.00231$ 4; $\alpha(L)=0.000354$ 5; $\alpha(M)=8.16 \times 10^{-5}$ 12; $\alpha(N+..)=2.52 \times 10^{-5}$ 4 B(E1)= 1.0×10^{-4} 2 (2001Hu18,2001Ro20). |
| 946 ^a | | 8487.4 | (19 ⁻) | 7541.8 | 18 ⁺ | (E1) @ | 0.00277 | | $\alpha(K)=0.00231$ 4; $\alpha(L)=0.000353$ 5; $\alpha(M)=8.15 \times 10^{-5}$ 12; $\alpha(N+..)=2.51 \times 10^{-5}$ 4 B(E1)= 1.0×10^{-4} 2 (2001Hu18,2001Ro20). |
| 990 ^a | | 8144.4 | (17 ⁻) | 7154.2 | 16 ⁺ | | | | |
| 1008 ^a | | 8549.6 | (19 ⁻) | 7541.8 | 18 ⁺ | | | | |

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(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21 (continued) $\gamma(^{196}\text{Pb})$ (continued)

| E_γ [†] | I_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. [#] | α^b | Comments |
|-------------------------|------------|---------------------|--------------------|---------|-------------------|--------------------|-----------------------|--|
| 1021 ^{ac} | | 8991.6 | (21 ⁻) | 7970.3 | 20 ⁺ | | | |
| 3698 2 | 0.3 2 | 6030.40 | 8 ⁺ | 2333.9 | (8 ⁻) | E1 | 1.78×10^{-3} | $\alpha(\text{K})=0.000244$ 4; $\alpha(\text{L})=3.55 \times 10^{-5}$ 5; $\alpha(\text{M})=8.13 \times 10^{-6}$ 12; $\alpha(\text{N+..})=0.001488$ 21 E_γ : From 2005Wi21. Uncertainties are estimated by evaluator. I_γ : From 2005Wi21. Mult.: From the J^π values of known levels (2005Wi21). |
| 4062 2 | 0.6 2 | 5859 | 6 ⁺ | 1797.51 | 5 ⁻ | E1 | 0.00190 | $\alpha(\text{K})=0.000212$ 3; $\alpha(\text{L})=3.07 \times 10^{-5}$ 5; $\alpha(\text{M})=7.03 \times 10^{-6}$ 10; $\alpha(\text{N+..})=0.001646$ 23 E_γ : From 2005Wi21. Uncertainties are estimated by evaluator. I_γ : From 2005Wi21. Mult.: From the J^π values of known levels (2005Wi21). |

[†] From 1994Cl02 for SD-1 band and from 1995Va32 for SD-2 and SD-3 bands. See also 1993Mo19 and 1995Va32 for E_γ 's in SD-1 band. Energies quoted by 1993Mo19 are systematically lower than those given by 1994Cl02 and 1995Va32 by ≈ 1 keV up to 500 keV, the agreement is somewhat better for $E_\gamma > 500$. Uncertainties on E_γ 's for SD-1 band are estimated by the evaluator based on energies available from different studies.

[‡] Relative intensities within the SD-1 band taken from an intensity plot given by 1994Cl02. See also 1993Mo19 for a list of $I(\gamma+ce)$'s. Above 508 γ , values from 1994Cl02 and 1993Mo19 are in poor agreement.

[#] From $\gamma\gamma(\theta)$ and $T_{1/2}(\text{level})$. Mult=D,Q from dipole γ transition band (1995Mo19).

[@] From $\gamma(\text{lin pol})$ measurement of 2001Ro20. Six interband (SD-3 to SD-1) transitions from 935-945 were analyzed as one group giving POL=+1.14 51 (2001Ro20) for the entire group.

[&] Values of the fraction of full Doppler shift given for this transition in SD band (1993Mo19), deduced from DSAM data.

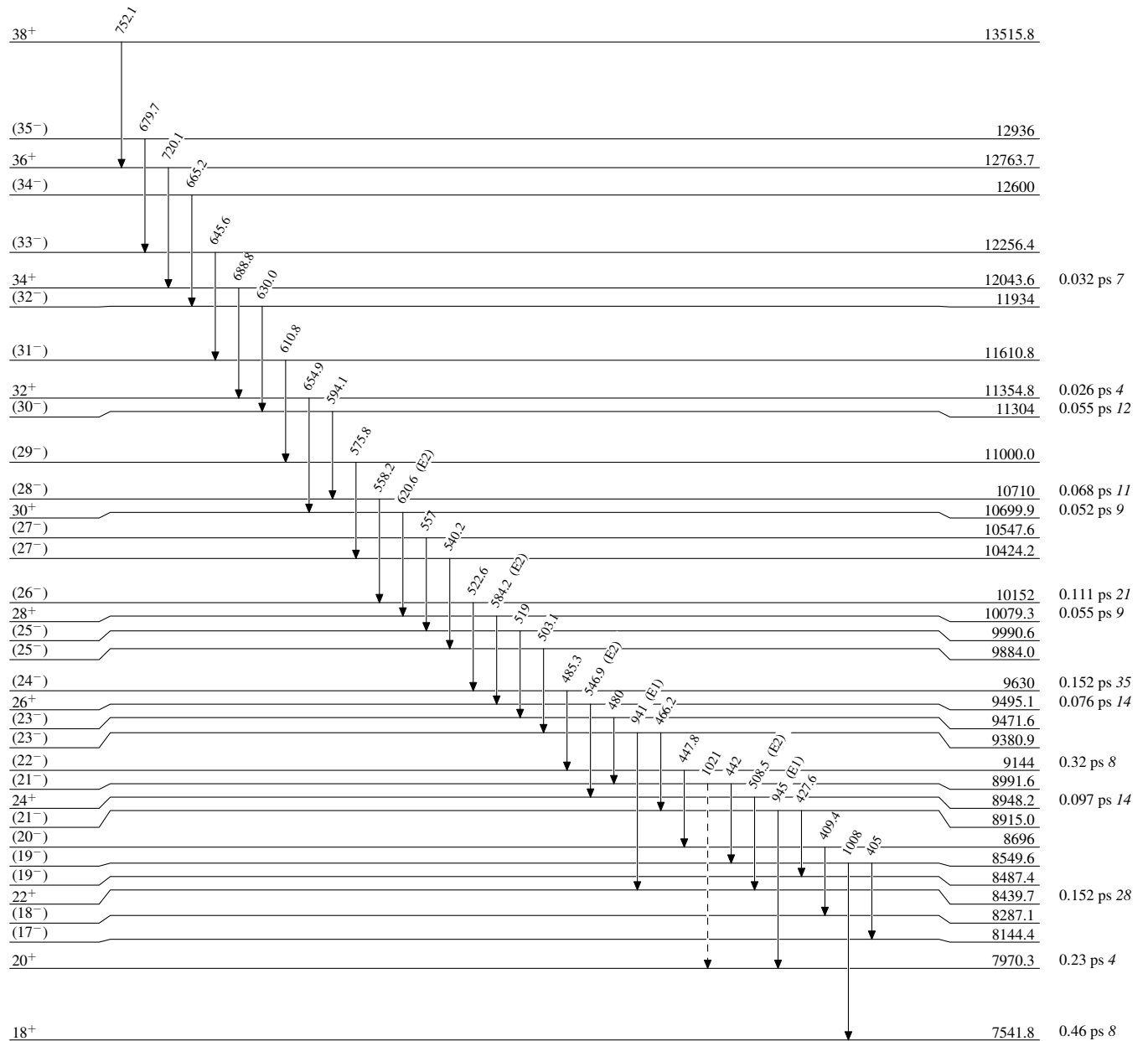
^a Interband transition from 1997Az05.

^b Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

^c Placement of transition in the level scheme is uncertain.

(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21

Legend

Level SchemeIntensities: Relative I_γ ----- \blacktriangleright γ Decay (Uncertain) $^{196}\text{Pb}_{114}$

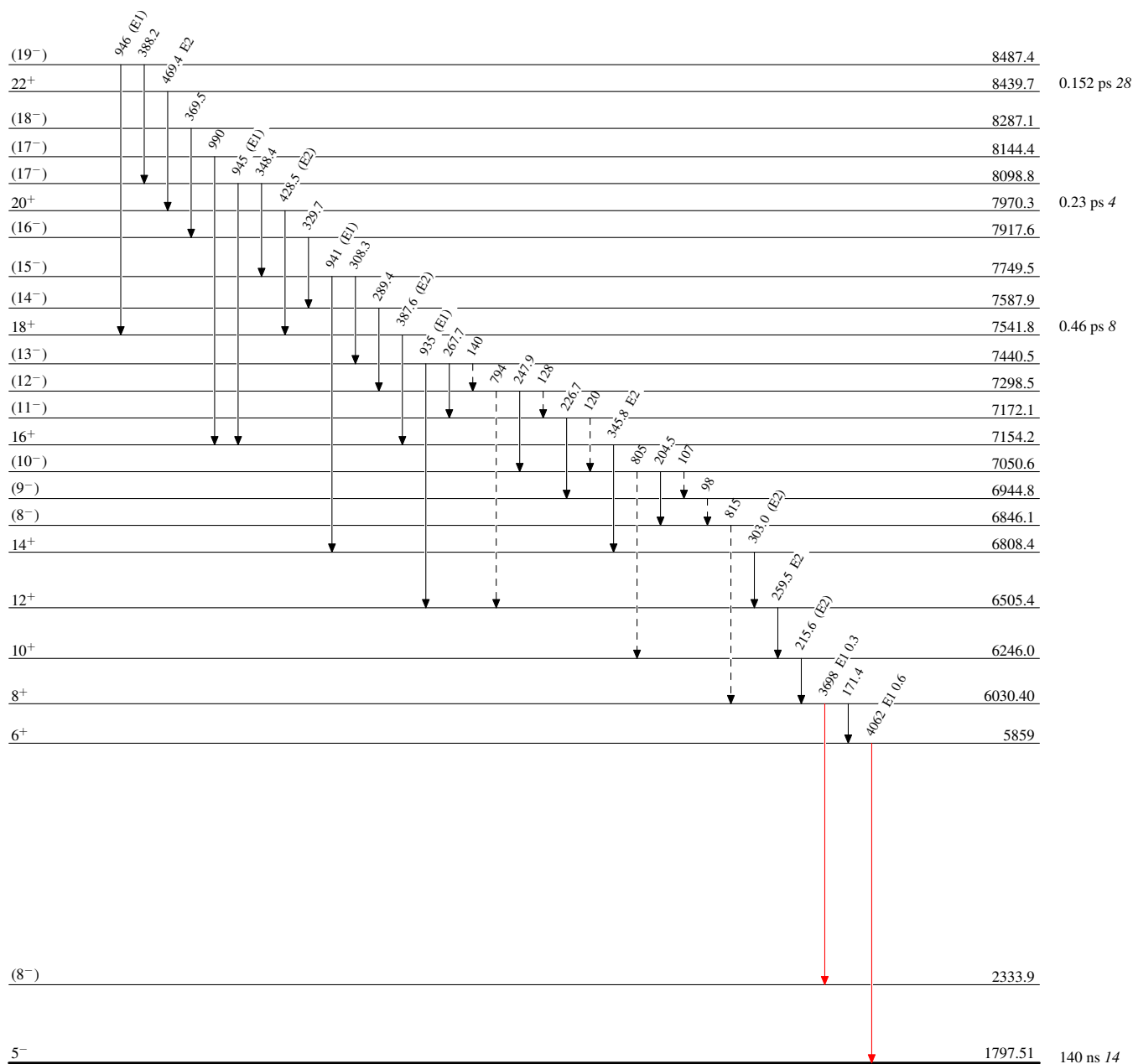
(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21

Legend

Level Scheme (continued)

Intensities: Relative I_γ

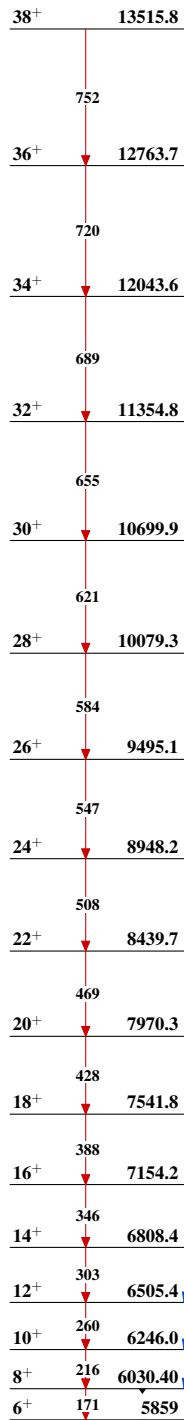
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- - - - γ Decay (Uncertain)



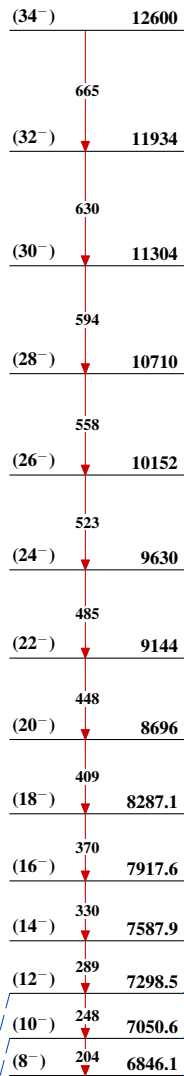
$^{196}\text{Pb}_{114}$

(HI,xn γ):SD 1995Va32,1997Az05,2005Wi21

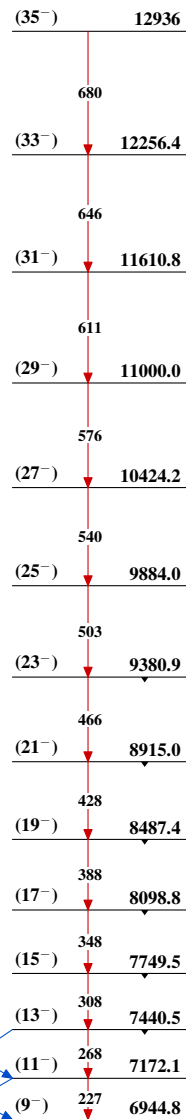
Band(A): Yrast SD-1 band
based on 6^+ (1997Az05,
1995Va32,1994Cl02)



Band(B): SD-2 band based
on (8^-) , $\alpha=0$ (1997Az05,
1995Va32)



Band(b): SD-3 band based
on (9^-) , $\alpha=1$ (1997Az05,
1995Va32)



Band(C): SD-4 band
(1997Az05)

