^{197}Au(γ,γ):Mossbauer

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong, Zhou Chunmei	NDS 104, 283 (2005)	1-Jan-2002

Studied Moss.
For the scattering of 88.03-keV and 279.2-keV γ-rays, see 1987Ba43 and 1987Ka43.
For isomer shifts, see 1985De51, 1984Ah07, 1983St17, and 1973Wa05.
For measured effective σ, σ(resonance), σ(nonresonance) by Eγ=1.1, 1.22 MeV, see 1983Vi04.
For optical spectroscopy, see 1985Kl09 and 1983Pe22.
For Mossbauer test of time parity invariance, see 1982Ts03 and 1980Da12.
For conversion electron Mossbauer spectroscopy of 77.3-keV transition, see 1983Sa37.
For review of Mossbauer studies on ^{197}Au, see 1973RoXS.
For summary of Mossbauer isomer shifts in Au compounds, see 1973ZaZU.
For Mossbauer isomer shift correlated with electric quadrupole splitting in Au compounds, see 1970Ba83.

^{197}Au Levels

E(level)†	Jπ†	$T_{1/2}$†	Comments
0.0	$3/2^+$	stable	Change of mean-square charge radius $\Delta<r^2>=+8.6\times10^{-3}$ (fm)^2 (1985De51), 7.9×10^{-3} (fm)^2 17 (1982Ko30). $<r^2>=29.485$ (fm)^2 (1985Kl09) (using muonic x-ray data for calibration).
77.350 *10*	$1/2^+$	1.91 ns *1*	$T_{1/2}$: av of 1.93 ns *21* (1963Ro05), 1.892 ns *14* (1969St04), 1.917 ns 12 (1971Er18), 1.90 ns *5* (1973Po04) Mossbauer, gold metal absorber. 1973Pf01 observed no anomalously narrow line Γ, as reported by 1973Po04 ($T_{1/2}$=2.31 ns *8*) Mossbauer, gold alloy absorber. μ: +0.419 *5* (1968Co17), +0.413 *5* (1971ThZU) relative to +0.14486 (^{197}Au g.s.). Other: 1976St23.

† From Adopted Levels, except as noted.

γ(^{197}Au)

E_γ†	I_γ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ	α‡	Comments
77.35 *1*	100	77.350	$1/2^+$	0.0	$3/2^+$	M1+E2	−0.368 *14*	4.36 *11*	α(L)=3.31 *8*; α(M)=0.805 *21*; α(N+..)=0.252 *7* δ: from α(exp). See also 1975Pr09 (Moss) and 1971ThZU. α(exp)=4.37 *10* (1971Er18).

† From adopted γ radiations.
‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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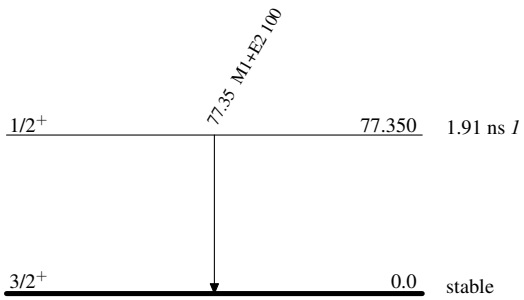
Level Scheme

Intensities: Relative I_γ



$^{197}_{79}Au_{118}$