## (HI,xnγ) **2001Ko44**

History								
Туре	Author	Citation	Literature Cutoff Date					
Full Evaluation	J. Tuli	ENSDF	15-Aug-2015					

2001Ko14: <sup>92</sup>Mo(<sup>84</sup>Sr,p2nγ).

- E=390, 395 MeV; >90% enriched <sup>92</sup>Mo target; fragment mass analyzer with position-sensitive parallel-grid avalanche counter In focal plane, followed by double-sided Si strip detector surrounded by four Ge detectors and one low-energy photon spectrometer; GAMMASPHERE array (101 Compton-suppressed Ge detectors); recoil-decay tagging technique; measured E $\gamma$ ,  $\gamma\gamma$  coin, time correlated  $\alpha$ - $\gamma$  coin, recoil- $\gamma$ -coin,  $\gamma(\theta)$ . See also 2001Ko13.
- 2012Th13: <sup>92</sup>Mo(<sup>84</sup>Sr,p2n $\gamma$ ) <sup>173</sup>Au nuclei were produced via fusion-evaporation reactions by bombarding a 0.5 mg/cm<sup>2</sup> <sup>92</sup>Mo target of 97% isotopic enrichment with a beam of <sup>84</sup>Sr<sup>16+</sup> ions provided by the K130 cyclotron of the Accelerator Laboratory of the University of Jyväskylä with E=392 MeV for about 140 hours and E=400 MeV for about 145 hours with an average beam intensity of 150 enA. Prompt  $\gamma$  rays were detected by 34 HPGe detectors at the target position; recoiling residues were separated using the RITU He-filled magnetic separator and traversed an isobutane-filled multiwire proportional chamber (MWPC) and implanted into a 300– $\mu$ m-thick DSSD in the GREAT spectrometer at the focal plane; delayed  $\gamma$  rays were detected by Ge detectors in the GREAT spectrometer. Measured E $\alpha$ , I $\alpha$ , E $\gamma$ , I $\gamma$ ,  $\gamma\gamma$ , recoil- $\alpha$ -correlation,  $\alpha\gamma$ -delayed coin,  $\alpha$ -tagged  $\gamma\gamma$ -coin,  $\alpha(t)$ .

Other: 2001Sm04, 2003Sm01 (energy-spin entry distributions).

The level scheme is that of 2001Ko44. the assignment of transitions to  $^{173}$ Au is based on correlations between gammas and decay  $\alpha$ 's or K x ray(Au), and the order of transitions is based on relative I $\gamma$ . the proposed J<sup> $\pi$ </sup> are consistent with systematics In heavier odd-A Au and Tl isotopes (2001Ko44).

#### <sup>173</sup>Au Levels

E(level) <sup>†</sup>	$J^{\pi \ddagger}$	T <sub>1/2</sub>	Comments		
0.0	$(1/2^+)$	26.3 ms 12	T <sub>1/2</sub> : Measured Eα=6688 keV 14 from α decay of <sup>173</sup> Au g.s. (2012Th13) Other: 25 ms 1 from 6890α-γ(t) (2001Ko14).		
0.0+x 23	(11/2 <sup>-</sup> )	12.2 ms 1	T <sub>1/2</sub> : Measured E $\alpha$ =6739 keV 15 from $\alpha$ decay of <sup>173</sup> Au isomer (2012Th13) Other: 14 ms 1 from 6740 $\alpha$ - $\gamma$ (t) (2001Ko14). E(level): from Adopted Levels, x=214 23.		
592.2+x	(15/2)				
674.0+x	(13/2)				
1552.1+x	(17/2)				
1984.5+x	(21/2)				

<sup>†</sup> From  $E\gamma$ .

<sup>‡</sup> From 2001Ko14.

 $\gamma(^{173}\mathrm{Au})$ 

$E_{\gamma}^{\dagger}$	E <sub>i</sub> (level)	$\mathbf{J}_i^\pi$	$E_f$	${ m J}_f^\pi$
<sup>x</sup> 207 <sup>‡</sup>				
<sup>x</sup> 327 <sup>‡</sup>				
432.4	1984.5+x	(21/2)	1552.1+x	(17/2)
592.2	592.2+x	(15/2)	0.0+x	$(11/2^{-})$
674.0	674.0+x	(13/2)	0.0+x	$(11/2^{-})$
<sup>x</sup> 726 <sup>‡</sup>				
<sup>x</sup> 748.0 <sup>#</sup>				
<sup>x</sup> 803.0 <sup>#</sup>				
959.9	1552.1+x	(17/2)	592.2+x	(15/2)

## (HI,xn $\gamma$ ) 2001Ko44 (continued)

# $\gamma(^{173}\text{Au})$ (continued)

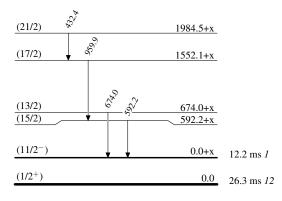
- <sup>†</sup> From 2001Ko14. Since the measured  $\gamma(\theta)$  data are essentially isotropic (presumably due to deorientation effects), they do not provide any multipolarity information for the transitions observed by 2001Ko44.
- <sup>‡</sup> From 2012Th13. 27 $\gamma$  and 726 $\gamma$  were observed in mutual coincidence as well as correlated with the  $\alpha$  decay events of <sup>173</sup>Au g.s. However, no level scheme for <sup>173</sup>Au could be constructed from available data.

<sup>#</sup> Weak line (2001Ko14).

 $x \gamma$  ray not placed in level scheme.

### (HI,xnγ) 2001Ko44

### Level Scheme



<sup>173</sup><sub>79</sub>Au<sub>94</sub>