

(HI,xn $\gamma$ ) 2001Ko44

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

**2001Ko14:**  $^{92}\text{Mo}(^{84}\text{Sr},\text{p}2\text{n}\gamma)$ .

E=390, 395 MeV; >90% enriched  $^{92}\text{Mo}$  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:**  $^{92}\text{Mo}(^{84}\text{Sr},\text{p}2\text{n}\gamma)$   $^{173}\text{Au}$  nuclei were produced via fusion-evaporation reactions by bombarding a 0.5 mg/cm<sup>2</sup>  $^{92}\text{Mo}$  target of 97% isotopic enrichment with a beam of  $^{84}\text{Sr}^{16+}$  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 nA. 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- $\mu\text{m}$ -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  $^{173}\text{Au}$  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 $^{\pi}$  are consistent with systematics in heavier odd-A Au and Tl isotopes ([2001Ko44](#)).

 $^{173}\text{Au}$  Levels

E(level) <sup>†</sup>	J $^{\pi}$ <sup>‡</sup>	T <sub>1/2</sub>	Comments
0.0	(1/2 <sup>+</sup> )	26.3 ms <i>I2</i>	T <sub>1/2</sub> : Measured E $\alpha$ =6688 keV <i>I4</i> from $\alpha$ decay of $^{173}\text{Au}$ g.s. ( <a href="#">2012Th13</a> ) Other: 25 ms <i>I</i> from 6890 $\alpha$ - $\gamma(t)$ ( <a href="#">2001Ko14</a> ).
0.0+x 23	(11/2 <sup>-</sup> )	12.2 ms <i>I</i>	T <sub>1/2</sub> : Measured E $\alpha$ =6739 keV <i>I5</i> from $\alpha$ decay of $^{173}\text{Au}$ isomer ( <a href="#">2012Th13</a> ) Other: 14 ms <i>I</i> from 6740 $\alpha$ - $\gamma(t)$ ( <a href="#">2001Ko14</a> ). 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](#).

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

E $\gamma$ <sup>†</sup>	E <sub>i</sub> (level)	J <sub>i</sub> $^{\pi}$	E <sub>f</sub>	J <sub>f</sub> $^{\pi}$
<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 <sup>-</sup> )
674.0	674.0+x	(13/2)	0.0+x	(11/2 <sup>-</sup> )
<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)

Continued on next page (footnotes at end of table)

**(HI,xn $\gamma$ ) 2001Ko44 (continued)** $\gamma(^{173}\text{Au})$  (continued)

† 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.

‡ From 2012Th13. 27 $\gamma$  and 726 $\gamma$  were observed in mutual coincidence as well as correlated with the  $\alpha$  decay events of  $^{173}\text{Au}$  g.s. However, no level scheme for  $^{173}\text{Au}$  could be constructed from available data.

# Weak line (2001Ko14).

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

**(HI,xn $\gamma$ ) 2001Ko44**Level Scheme