

<sup>92</sup>Mo(<sup>50</sup>Cr,3pγ), <sup>110</sup>Cd(<sup>32</sup>S,p2nγ) 1988Bi03,1985Lu06

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	P. K. Joshi, B. Singh, S. Singh, A. K. Jain		NDS 138, 1 (2016)	15-Oct-2016

**1985Lu06:** E(<sup>32</sup>S)=126-170 MeV. Measured excitation functions (activation) for <sup>108</sup>Pd, <sup>109</sup>Ag, and <sup>110,112</sup>Cd targets. <sup>110</sup>Cd(<sup>32</sup>S,p2nγ) E=130, 143 MeV: measured E<sub>γ</sub>, I<sub>γ</sub>, γ(θ), and level lifetimes by recoil-distance Doppler shift (RDDS) method; Ge, NaI multiplicity filter.

**1988Bi03:** <sup>92</sup>Mo(<sup>50</sup>Cr,3pγ) E=230 MeV. Measured E<sub>γ</sub>, I<sub>γ</sub>, γγ-coincidences; escape-suppressed Ge detectors. RDM. Decay scheme is based on that suggested by [1985Lu06](#) and was confirmed and extended by [1988Bi03](#).

<sup>139</sup>Eu Levels

E(level)	J <sup>π</sup> †	T <sub>1/2</sub> ‡	Comments
0.0	11/2 <sup>-</sup>		
322.95 11	15/2 <sup>-</sup>	36.0 ps 21	T <sub>1/2</sub> : 36 ps 2 if side feeding and cascade feeding times are comparable, 37 ps 2 if side feeding time is <100 fs, with recommended value of 36.0 ps 21 ( <a href="#">1988Bi03</a> ). Other: 36.8 ps 11 ( <a href="#">1985Lu06</a> ).
877.13 15	19/2 <sup>-</sup>	2.77 ps 35	T <sub>1/2</sub> : 2.56 ps 28 if side feeding and cascade feeding times are comparable; 2.84 ps 35 if side feeding time is <100 fs, with recommended value of 2.77 ps 35 ( <a href="#">1988Bi03</a> ). Other: 2.3 ps 5 ( <a href="#">1985Lu06</a> ).
1589.88 22	23/2 <sup>-</sup>	1.52 ps 35	T <sub>1/2</sub> : 2.84 ps 21 with no corrections for feeding; 1.18 ps 21 or 1.87 21 if it is assumed that the 1590 and preceding levels have the same deformation, with recommended value of 1.52 ps 35 ( <a href="#">1988Bi03</a> ). Other: 1.6 ps 4 ( <a href="#">1985Lu06</a> ).
2406.7 3	27/2 <sup>-</sup>		
3098.0 4	(31/2 <sup>-</sup> )		
3569.1?#@ 5	@		
4079.6?#@ 6	@		
4835.0?#@ 7	@		
5609.9?#@ 8	@		

† As suggested by [1985Lu06](#) (based on γ(θ), multipolarity, and similarity to yrast band in <sup>138</sup>Sm), except as noted.

‡ From recoil-distance Doppler shift (RDDS) method ([1988Bi03](#)), where side feedings have been discussed in detail. Previously measured values from [1985Lu06](#) using the same method are given under comments. The two measurements are in general agreement, but [1985Lu06](#) did not discuss corrections for the side feedings.

# Tentatively added to the yrast band by [1988Bi03](#). However, [1988Bi03](#) note that the transitions could arise from a separate band feeding the 3098 level.

@ (35/2<sup>-</sup>), (39/2<sup>-</sup>), (43/2<sup>-</sup>), and (47/2<sup>-</sup>) with assumed assignment of levels to yrast band, but the 471.1, 755.4 and 774.9 γ rays are placed from different levels, not members of the yrast structure in [1995Va22](#). The 510.5γ is not confirmed in [1995Va22](#). None of these levels is given in the Adopted dataset.

γ(<sup>139</sup>Eu)

Coincidences are from [1988Bi03](#).

E <sub>γ</sub> †	I <sub>γ</sub> †	E <sub>f</sub> (level)	J <sub>i</sub> <sup>π</sup>	E <sub>f</sub>	J <sub>f</sub> <sup>π</sup>	Mult.‡	α#
322.95 11	100 2	322.95	15/2 <sup>-</sup>	0.0	11/2 <sup>-</sup>	E2	0.0464
471.1 @ 3	11 3	3569.1?		3098.0	(31/2 <sup>-</sup> )		
510.5 @ 3	9 2	4079.6?		3569.1?			
554.18 10	100 7	877.13	19/2 <sup>-</sup>	322.95	15/2 <sup>-</sup>	E2	0.01024
691.3 2	22 4	3098.0	(31/2 <sup>-</sup> )	2406.7	27/2 <sup>-</sup>		

Continued on next page (footnotes at end of table)

$^{92}\text{Mo}(^{50}\text{Cr},3\text{p}\gamma),^{110}\text{Cd}(^{32}\text{S},\text{p}2\text{n}\gamma)$  [1988Bi03](#),[1985Lu06](#) (continued) $\gamma(^{139}\text{Eu})$  (continued)

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>†</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult. <sup>‡</sup>
712.75	15	1589.88	23/2 <sup>-</sup>	877.13	19/2 <sup>-</sup>	E2
755.4 <sup>@</sup>	4	4835.0?		4079.6?		
774.9 <sup>@</sup>	4	5609.9?		4835.0?		
816.8	2	2406.7	27/2 <sup>-</sup>	1589.88	23/2 <sup>-</sup>	

<sup>†</sup> From [1988Bi03](#).

<sup>‡</sup> From  $\gamma(\theta)$  of [1985Lu06](#) and comparison to RUL.

# Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

@ Placement of transition in the level scheme is uncertain.

