

<sup>109</sup>Xe  $\alpha$  decay (13 ms) 2006Li41,2010Da17

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, J. Timar and Z. Elekes		NDS 161, 1 (2019)	1-Apr-2019

Parent: <sup>109</sup>Xe: E=0.0; J <sup>$\pi$</sup> =[7/2<sup>+</sup>]; T<sub>1/2</sub>=13 ms 2; Q( $\alpha$ )=4217 7; % $\alpha$  decay=100.0

2010Da17, 2006Li41: Facility: Holifield RIBF; Source: <sup>109</sup>Xe from <sup>54</sup>Fe(<sup>58</sup>Ni,3n) reaction at E(<sup>58</sup>Ni)=220, 225 MeV; Detectors: Recoil Mass Separator, DSSD, four large-volume HPGe; Measured:  $\alpha$ ,  $\alpha$ - $\gamma$  coinc., E $\alpha$ , E $\gamma$ ; Deduced: <sup>105</sup>Te level scheme,  $\alpha$ -decay Branching.

<sup>105</sup>Te Levels

E(level) <sup>†</sup>	J <sup><math>\pi</math></sup> <sup>‡</sup>	T <sub>1/2</sub>	Comments
0.0	[5/2 <sup>+</sup> ]	0.62 $\mu$ s 7	T <sub>1/2</sub> : from $\alpha$ (t) in 2006Li41.
150 3	[7/2 <sup>+</sup> ]		

<sup>†</sup> From E $\gamma$ .

<sup>‡</sup> From the Adopted Levels.

$\alpha$  radiations

E $\alpha$	E(level)	I $\alpha$ <sup>‡</sup>	HF <sup>†</sup>	Comments
3914 7	150	30 4	8.6 25	E $\alpha$ : weighted average of 3910 keV 10 in 2010Da17 and 3918 keV 9 in 2006Li41. I $\alpha$ : weighted average of 31 7 in 2010Da17 and 30 6 in 2006Li41. $\Delta$ L=0 transition. Reduced $\alpha$ -decay width: $\delta^2/(\delta^2$ for <sup>212</sup> Po)=0.9 3 (2006Li41).
4063 3	0.0	70 4	20 5	E $\alpha$ : weighted average of 4063 keV 4 in 2010Da17 and 4062 keV 7 in 2006Li41. I $\alpha$ : weighted average of 69 7 in 2010Da17 and 70 7 in 2006Li41. $\Delta$ L=2 transition. Reduced $\alpha$ -decay width: $\delta^2/(\delta^2$ for <sup>212</sup> Po)=0.8 2 (2006Li41).

<sup>†</sup> r<sub>0</sub>(<sup>105</sup>Te)=1.73 7 extrapolated by the evaluators from r<sub>0</sub>(<sup>106</sup>Te)=1.70 6 and r<sub>0</sub>(<sup>108</sup>Te)=1.64 6.

<sup>‡</sup> Absolute intensity per 100 decays.

$\gamma$ (<sup>105</sup>Te)

I $\gamma$  normalization: from (I( $\gamma$ +ce)+I $\alpha$ )<sub>g.s.}=100.</sub>

E $\gamma$ <sup>‡</sup>	I $\gamma$ <sup>#</sup>	E <sub>i</sub> (level)	J <sub>i</sub> <sup><math>\pi</math></sup>	E <sub>f</sub>	J <sub>f</sub> <sup><math>\pi</math></sup>	Mult.	$\alpha$ <sup>†</sup>	Comments
(150 3)	23 7	150	[7/2 <sup>+</sup> ]	0.0	[5/2 <sup>+</sup> ]	[M1+E2]	0.31 10	$\alpha$ (K)=0.25 7; $\alpha$ (L)=0.05 3; $\alpha$ (M)=0.010 6; $\alpha$ (N+..)=0.0021 11 $\alpha$ (N)=0.0019 10; $\alpha$ (O)=0.00018 8 E $\gamma$ : from 2010Da17.

<sup>†</sup> Additional information 1.

<sup>‡</sup> From 2010Da17.

<sup>#</sup> For absolute intensity per 100 decays, multiply by 1.00 5.

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## Decay Scheme

Legend

Intensities:  $I_{(\gamma+ce)}$  per 100 parent decays-----  $\blacktriangleright$   $\gamma$  Decay (Uncertain)