

$^{56}\text{Fe}(\mu^-, \gamma\gamma)$ 2006Me08

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huo Su, Yang Dong		NDS 112, 1513 (2011)	29-Oct-2009

The μ^- beam obtained from decay of π^- beam at 90 MeV/c. Measured I_γ , $\gamma\gamma$, γ -p using one HPGe detectors at eight angles to the beamline.

Muonic Lyman series for natural Iron

μ x ray	Energy in keV	Intensity in percent
2p-1s	1253.06 6	a 74.5 15
2p-1s	1257.19 5	a
3p-1s	1522.3 3	7.5 4
4p-1s	1615.3 3	2.7 2
5p-1s	1658.2 3	1.6 2
6p-1s	1681.7 3	2.2 2
7p-1s	1695.7 3	2.0 2
8p-1s	1704.7 3	1.2 2
(9- ∞)p-1s	1708-1733	8.4 10

a: Taken by 2006Me08 from literature, used as calibration standard.

Muonic Balmer series for natural Iron

μ x ray	Energy in keV	Intensity in percent
3d-2p	265.3 3	28.8
3d-2p	268.9 3	16.6
4d-2p	358.0 3	5.4
4d-2p	362.0 3	3.1
5d-2p	400.6 3	5.9
5d-2p	404.6 3	
6d-2p	423.8 3	3.4
6d-2p	427.8 3	
7d-2p	437.8 3	3.5
7d-2p	442.5 3	
8d-2p	447.3 3	1.5
8d-2p	451.5 3	
(9- ∞)d-2p	455-475	5.9

 ^{56}Mn Levels

<u>E(level)[†]</u>	<u>J^π[‡]</u>
0.0	3 ⁺ [‡]
26.60	2 ⁺ [‡]
212.03	4 ⁺
340.99	3 ⁺

[†] 2006Me08 list values from ^{56}Mn Adopted Levels.

[‡] From ^{56}Mn Adopted Levels.

$^{56}\text{Fe}(\mu^-, \nu\gamma)$ 2006Me08 (continued) $\gamma(^{56}\text{Mn})$

<u>E_γ[†]</u>	<u>Percent γ-ray yield</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Comments</u>
26.60		26.60	2 ⁺	0.0	3 ⁺	
212.02	1.7 3	212.03	4 ⁺	0.0	3 ⁺	E_γ : transitions in ^{54}Mn and ^{56}Mn are too close to distinguish (2006Me08).
314.40		340.99	3 ⁺	26.60	2 ⁺	Percent γ -ray yield: $\leq 30\%$ of γ -ray yield in ^{56}Mn due to known cascading from 1073 keV level in ^{54}Mn (2006Me08). Percent γ -ray yield: intensity not listed by 2006Me08-the peak is overlapped by other transitions.

[†] 2006Me08 list values from ^{56}Mn adopted gammas.

 $^{56}\text{Fe}(\mu^-, \nu\gamma)$ 2006Me08Level Scheme

Intensities: Percent γ -ray yield per muon capture

