

$^{40}\text{Ca}(\mu^-, \nu 3n\gamma)$  2006Me08

| Type            | Author                                              | History | Citation            | Literature Cutoff Date |
|-----------------|-----------------------------------------------------|---------|---------------------|------------------------|
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The  $\mu^-$  beam obtained from decay of  $\pi^-$  beam at 90 MeV/c. Measured  $I_\gamma$ ,  $\gamma\gamma$ ,  $\gamma$ -p using two HPGe detectors at TRIUMF facility.

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Muonic Lyman series for natural Calcium

| $\mu$ x ray        | Energy     | Intensity in percent |
|--------------------|------------|----------------------|
| 2p-1s              | 783.659 25 | 83.8 10              |
| 3p-1s              | 940.63 10  | 6.2 2                |
| 4p-1s              | 995.48 10  | 2.0 1                |
| 5p-1s              | 1020.81 10 | 2.0 1                |
| 6p-1s              | 1034.62 10 | 1.8 1                |
| 7p-1s              | 1042.71 20 | 1.4 1                |
| (8- $\infty$ )p-1s | 1046-1063  | 2.8 4                |

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Muonic Balmer series for natural Calcium

| $\mu$ x ray        | Energy    | Intensity in percent |
|--------------------|-----------|----------------------|
| 3d-2p              | 157.35 13 | 64.5 9               |
| 4d-2p              | 212.03 10 | 8.85 20              |
| 5d-2p              | 237.31 10 | 4.34 20              |
| 6d-2p              | 251.06 10 | 3.29 20              |
| 7d-2p              | 259.45 10 | 1.37 20              |
| (8- $\infty$ )d-2p | 261-277   | 1.4 3                |

 $^{37}\text{K}$  Levels

| E(level) <sup>†</sup> | $J^\pi$ <sup>†</sup>                   |
|-----------------------|----------------------------------------|
| 0.0                   | 3/2 <sup>+</sup>                       |
| 1370.85 2             | 1/2 <sup>+</sup>                       |
| 1380.25 3             | 7/2 <sup>-</sup>                       |
| 2170.18 13            | 3/2 <sup>-</sup>                       |
| 2285.24 12            | (7/2 <sup>+</sup> , 5/2 <sup>+</sup> ) |
| 2750.22 8             | 5/2 <sup>+</sup>                       |

<sup>†</sup> From Adopted Levels.

 $\gamma(^{37}\text{K})$ 

| $E_\gamma$ <sup>†</sup> | Percent $\gamma$ -ray yield | $E_i(\text{level})$ | $J_i^\pi$                              | $E_f$ | $J_f^\pi$        |
|-------------------------|-----------------------------|---------------------|----------------------------------------|-------|------------------|
| 1370.9                  | <0.2                        | 1370.85             | 1/2 <sup>+</sup>                       | 0.0   | 3/2 <sup>+</sup> |
| 1380.2                  | <0.3                        | 1380.25             | 7/2 <sup>-</sup>                       | 0.0   | 3/2 <sup>+</sup> |
| 2170.1                  | <0.7                        | 2170.18             | 3/2 <sup>-</sup>                       | 0.0   | 3/2 <sup>+</sup> |
| 2285.2                  | <0.2                        | 2285.24             | (7/2 <sup>+</sup> , 5/2 <sup>+</sup> ) | 0.0   | 3/2 <sup>+</sup> |
| 2750.1                  | <0.2                        | 2750.22             | 5/2 <sup>+</sup>                       | 0.0   | 3/2 <sup>+</sup> |

<sup>†</sup> From Adopted Gammas.

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Level Scheme

Intensities: Percent  $\gamma$ -ray yield/muon capture

Legend

- $\longrightarrow$   $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- $\longrightarrow$   $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- $\longrightarrow$   $I_{\gamma} > 10\% \times I_{\gamma}^{max}$

