

⁴²Cr ϵ p decay:13.3 ms 2007Do17

| Type | Author | History | Citation | Literature Cutoff Date |
|-----------------|---------------------------------|---------|-------------------|------------------------|
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Parent: ⁴²Cr: E=0; J^π=0⁺; T_{1/2}=13.3 ms 10; Q(ϵ p)=14650 SY; % ϵ p decay=94.4 50

⁴²Cr-T_{1/2}: From the average in two experiments of the decay time distribution in 2007Do17. Previous result from the same group: 13.4 ms +36-24 (2001Gi01).

⁴²Cr-Q(ϵ p): 14650 400 (syst, 2012Wa38).

⁴²Cr-% ϵ p decay: %From 2007Do17. ϵ p is expected to be 100 since ⁴²V is particle unbound.

2007Do17: ⁴²Cr isotope produced by fragmentation at SISSE/LISE3 facility in GANIL. Fragment identification by energy loss, residual energy and time-of-flight measurements using two micro-channel plate (MCP) detectors and Si detectors. Double-sided silicon-strip detectors (DSSSD) and a thick Si(Li) detector were used to detect implanted events, charged particles and β particles. The γ rays were detected by four Ge detectors. Coincidences measured between charged particles and γ rays. T_{1/2} measured by time correlation of implantation events due to ⁴²Cr and subsequent emission of protons and γ rays. Total proton branching ratio obtained from time spectrum of events with energy >900 keV in the charged-particle spectrum. Possible small contributions from delayed- α and delayed-2p decays are ignored. This decay was studied in two experiments by 2007Do17.

2001Gi01: ⁴²Cr isotope produced by fragmentation at SISSE/LISE3 facility in GANIL. Fragment identification by energy loss, residual energy and time-of-flight measurements using Si and Ge detectors.

⁴¹Ti Levels

| E(level) | J ^π † | T _{1/2} † | Comments |
|-----------|------------------|--------------------|--|
| 0 | 3/2 ⁺ | 81.9 ms 5 | T _{1/2} : 82.6 ms 5 from decay time spectrum in 2007Do17. |
| 1623.0 11 | | | |

† From Adopted Levels.

γ (⁴¹Ti)

| E _{γ} | E _i (level) | E _f | J _f ^π | Comments |
|----------------------------------|------------------------|----------------|-----------------------------|--|
| 1623.0† 11 | 1623.0 | 0 | 3/2 ⁺ | E _{γ} : The evaluators consider this transition uncertain due to the very low count rate as seen in Fig.20 of 2007Do17. However authors have reported I _{γ} = 35 19 in Table 10. No proton coincidence was observed with this γ due to limited statistics (2007Do17). |

† Placement of transition in the level scheme is uncertain.

Delayed Protons (⁴¹Ti)

| E(p)† | E(⁴¹ Ti) | I(p)‡@ | Comments |
|----------|----------------------|--------|--|
| 1537# 35 | | 9 7 | |
| 1965 17 | | 18 6 | E(p): 2007Do17 cannot definitively attribute proton group (1968 keV 19) to ϵ p or a 2p decay of |
| 2550# 30 | | 9 7 | |
| 3806# 20 | | 6 4 | |

† The proton energies are in the center-of-mass system. Evaluators have quoted the average values of 2007Do17 and 2001Gi01 as shown in Table 10 of 2007Do17.

‡ Average values of intensities in 2001Gi01 and 2007Do17 as shown in Table 10 of 2007Do17.

Not seen in 2007Do17 due to limited statistics.

@ Absolute intensity per 100 decays.

${}^{42}\text{Cr}$ $\epsilon\beta$ decay: 13.3 ms 2007Do17

Legend

Decay Scheme-----> γ Decay (Uncertain)