

**Adopted Levels, Gammas**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alan L. Nichols, Balraj Singh, Jagdish K. Tuli		NDS 113,973 (2012)	15-Apr-2012

$Q(\beta^-)=7.59 \times 10^3$  syst;  $S(n)=6.51 \times 10^3$  20;  $S(p)=1.77 \times 10^4$  9;  $Q(\alpha)=-1.22 \times 10^4$  syst [2012Wa38](#)  
 Note: Current evaluation has used the following Q record 7.77E+3 346310 420 18175 syst -12184 syst [2011AuZZ](#).  
 $\Delta S(p)=520$ ,  $\Delta Q(\alpha)=605$  (syst,[2011AuZZ](#)).  
 $Q(\beta^-n)=3256$  337,  $S(2n)=10053$  399,  $S(2p)=33447$  685 (syst) ([2011AuZZ](#)).  
 Values in [2003Au03](#):  $Q(\beta^-)=7620$  400,  $S(n)=6310$  420,  $S(p)=18340$  520 (syst),  $Q(\beta^-n)=3070$  410,  $S(2n)=10050$  400,  $S(2p)=33350$  870 (syst).  
[1985Gu14](#): first evidence for production of <sup>62</sup>Cr in Ti,Ta(<sup>86</sup>Kr,X) at E=33 MeV/nucleon; energy loss and time-of-flight methods.  
[1990Tu01](#), [1994Se12](#): mass measurements by time-of-flight method; Th(p,F) production method.  
[1998Am04](#): <sup>62</sup>Cr produced in fragmentation of <sup>86</sup>Kr beam at 500 MeV/nucleon hitting a Be target at GSI facility. First measurement of isotopic half-life.  
[1999So20](#) (also [1999Le67](#)): <sup>62</sup>Cr produced in <sup>58</sup>Ni(<sup>86</sup>Kr,X), E=60.4 MeV/nucleon at GANIL facility using LISE3 doubly achromatic spectrometer. Measured E $\gamma$ , I $\gamma$ ,  $\beta\gamma$  coin, isotopic half-life from  $\beta$  decay timing.  
[2003So02](#) (also [2002MaZN](#) thesis,[2003So21](#), [2005Ga01](#)): <sup>62</sup>V produced in <sup>58</sup>Ni(<sup>76</sup>Ge,X), E=61.8 MeV/nucleon at GANIL facility using LISE3 doubly achromatic spectrometer. Measured  $\beta$ ,  $\gamma$ , isotopic half-life from  $\beta$  decay timing.  
[2009Cr02](#): Be(<sup>76</sup>Ge,X) E=130 MeV/nucleon, measured production yield.  
 Structure calculations: [2011Yo04](#) (levels, B(E2), Q), [2010Le20](#) (levels, B(E2), Q, intruder levels), [2010Ya17](#) (yrast bands), [2008Ka41](#) (levels, B(E2), spherical shell model); [2008Ob01](#) (n-p pairing gaps, deformation parameters); [2008Ya14](#) and [2008Yo02](#) (n-p pairing gaps, 2<sup>+</sup> levels); [2005Ho32](#) (2<sup>+</sup> levels); [2004Mi54](#) (binding energies, deformation parameters); [2002Ca48](#) (levels, B(E2), large-scale shell model); [1998La02](#) (binding energies, radii, mean-field theory); [1995Ri05](#) (binding energies, mass defect); [1976Da02](#) (mass excess).

<sup>62</sup>Cr Levels

Cross Reference (XREF) Flags

- A <sup>62</sup>V  $\beta^-$  decay (33.6 ms)
- B <sup>63</sup>V  $\beta^-n$  decay (17 ms)
- C <sup>1</sup>H(<sup>62</sup>Cr,<sup>62</sup>Cr' $\gamma$ )
- D <sup>9</sup>Be(<sup>62</sup>Cr,<sup>62</sup>Cr' $\gamma$ )

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	T <sub>1/2</sub>	XREF	Comments
0.0	0 <sup>+</sup>	206 ms 12	ABCD	$\% \beta^- = 100$ ; $\% \beta^-n = ?$ T <sub>1/2</sub> : weighted average of 209 ms 12 ( <a href="#">2005Ga01</a> ) and 190 ms 30 ( <a href="#">1998Am04</a> ). <a href="#">2005Ga01</a> state that fit to their decay curve could be achieved only when attributing a short half-life of 92 ms 13, not a longer one of 671 ms for <sup>62</sup> Mn. Other: 187 ms 15 ( <a href="#">1999So20</a> , from the same group as <a href="#">2005Ga01</a> ). Calculated $\% \beta^-n = 1$ ( <a href="#">1997Mo25</a> ). Deformation parameter=0.27 3 ( <a href="#">2009Ao01</a> ) from <sup>1</sup> H( <sup>62</sup> Cr, <sup>62</sup> Cr').
446 1	(2 <sup>+</sup> )		ABCD	
1175 9	(4 <sup>+</sup> )		CD	

<sup>†</sup> From E $\gamma$  data.

<sup>‡</sup> From systematics of even-even nuclides.

**Adopted Levels, Gammas (continued)** $\gamma(^{62}\text{Cr})$ 

<u><math>E_i(\text{level})</math></u>	<u><math>J_i^\pi</math></u>	<u><math>E_\gamma</math></u>	<u><math>E_f</math></u>	<u><math>J_f^\pi</math></u>	<u>Comments</u>
446	(2 <sup>+</sup> )	446 1	0.0	0 <sup>+</sup>	$E_\gamma$ : weighted average of 446 1 ( $^{62}\text{V}$ decay), 449 4 ( $^1\text{H}(^{62}\text{Cr}, ^{62}\text{Cr}'\gamma)$ ), 440 7 ( $^9\text{Be}(^{62}\text{Cr}, ^{62}\text{Cr}'\gamma)$ ).
1175	(4 <sup>+</sup> )	729 9	446	(2 <sup>+</sup> )	$E_\gamma$ : weighted average of 734 10 ( $^1\text{H}(^{62}\text{Cr}, ^{62}\text{Cr}'\gamma)$ ), 725 9 ( $^9\text{Be}(^{62}\text{Cr}, ^{62}\text{Cr}'\gamma)$ ).

**Adopted Levels, Gammas**Level Scheme