

¹⁷⁰Er(¹²C,¹¹Cγ), (¹⁶O,¹⁵Oγ) 1981Bo16,1982Kr03

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan		NDS 151, 334 (2018)	30-Jun-2018

1981Bo16: E(¹²C)=95 MeV, E(¹⁶O)=120 MeV, θ=42°; enriched targets; measured E(level) (Q3D mag spect, position-sensitive prop counter, FWHM=80-120 keV for ¹¹C, FWHM=100-150 keV for ¹⁵O), relative populations of levels in (¹²C,¹¹Cγ) and (¹⁶O,¹⁵Oγ) (L+1/2 final states strongly favored for ¹⁶O; L+1/2 and L-1/2 comparably favored for ¹²C).

1982Kr03: E(¹⁶O)=120 MeV, θ(lab)=42°; 97%-enriched targets; measured E(level) (Q3D mag spect, ΔE-E proportional counter, FWHM≈200 keV), ¹⁵O-γ coin at 130° (Ge(Li)) for 620 and 960 levels.

The level scheme, from **1982Kr03**, combines data from **1981Bo16** and **1982Kr03**.

¹⁷¹Er Levels

E(level)	J ^π †	Comments
0.0#	5/2 ⁻	
79# 1	7/2 ⁻	
179#	9/2 ⁻	
304#	11/2 ⁻	
359@ 1	7/2 ⁺	
418@	9/2 ⁺	
505@	11/2 ⁺	
616@ 10	13/2 ⁺	E(level): adopted by authors from ¹⁷⁰ Er(d,p); particle spectrum value: 620 keV 20 (1982Kr03). 616.0 13 from fit to E _γ .
645 10	9/2 ⁻	E(level): adopted by authors from ¹⁷⁰ Er(d,p).
971‡&	13/2 ⁺	E(level): particle spectrum value: 960 keV 20 (1982Kr03).
1560 20	(13/2 ⁺ ,15/2 ⁻)	Possible 13/2 ⁺ 11/2[615] or 15/2 ⁻ 1/2[770] state (1981Bo16).
1750 20	(7/2 ⁻)	Possible 7/2[503] bandhead (1981Bo16).
1820 20	(9/2 ⁻)	Possible 9/2[505] bandhead (1981Bo16).
2600 20	(5/2 ⁻)	Possible 5/2[503] bandhead (1981Bo16).

† Authors' values from selective populations of states and/or comparisons of level decay patterns with those for corresponding known states in ¹⁷³Yb (isotone of ¹⁷¹Er). See ¹⁷¹Er Adopted Levels for evaluator's assignments.

‡ From E_γ for transitions connecting level with 616 level; ΔE(relative to 616)=1 keV, but E(level) (absolute) also includes ≈ 10 keV energy uncertainty for the 616 level.

Band(A): 5/2[512] band.

@ Band(B): 7/2[633] band.

& Band(C): 9/2[624] band (tentative).

γ(¹⁷¹Er)

E _γ †	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
(59)	418	9/2 ⁺	359	7/2 ⁺	
79 1	79	7/2 ⁻	0.0	5/2 ⁻	
87‡ 1	505	11/2 ⁺	418	9/2 ⁺	I _γ : weak.
111 1	616	13/2 ⁺	505	11/2 ⁺	I _γ : I _γ (198γ):I _γ (111γ)=44:56 (1982Kr03).
(146)	505	11/2 ⁺	359	7/2 ⁺	
198 1	616	13/2 ⁺	418	9/2 ⁺	I _γ : see comment with 111γ.
201‡ 1	505	11/2 ⁺	304	11/2 ⁻	I _γ : weak.
280 1	359	7/2 ⁺	79	7/2 ⁻	I _γ : I _γ (466γ):I _γ (359γ):I _γ (280γ)=35:43:57 (1982Kr03).
359 1	359	7/2 ⁺	0.0	5/2 ⁻	I _γ : see comment with 280γ.

Continued on next page (footnotes at end of table)

$^{170}\text{Er}(^{12}\text{C}, ^{11}\text{C}\gamma), (^{16}\text{O}, ^{15}\text{O}\gamma)$ 1981Bo16,1982Kr03 (continued) $\gamma(^{171}\text{Er})$ (continued)

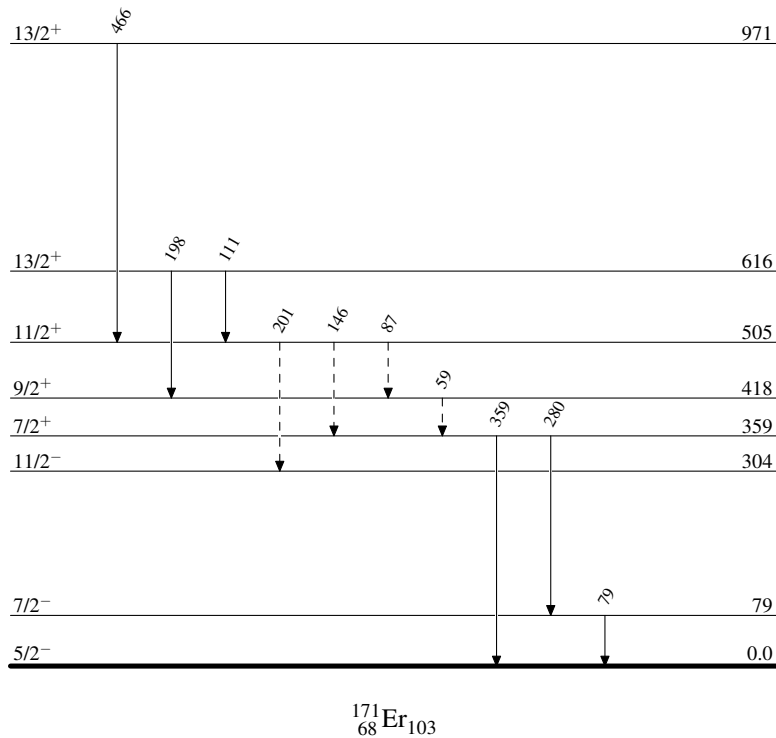
E_γ^\dagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
466 1	971	13/2 ⁺	505	11/2 ⁺	Other possible placements eliminated by intensity arguments. I _γ : see comment with 280γ.

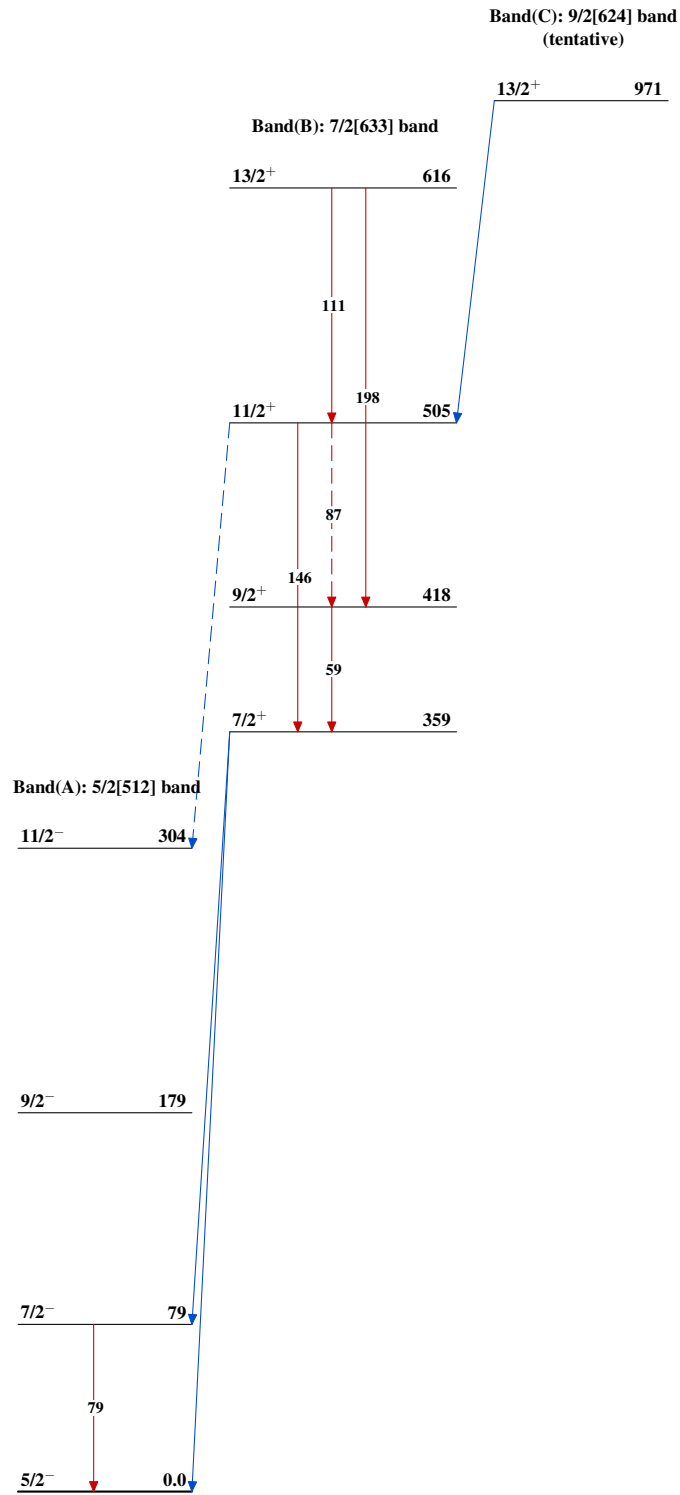
† From 1982Kr03.

‡ Placement of transition in the level scheme is uncertain.

 $^{170}\text{Er}(^{12}\text{C}, ^{11}\text{C}\gamma), (^{16}\text{O}, ^{15}\text{O}\gamma)$ 1981Bo16,1982Kr03

Legend

Level Scheme-----▶ γ Decay (Uncertain)

$^{170}\text{Er}(^{12}\text{C}, ^{11}\text{C}\gamma), (^{16}\text{O}, ^{15}\text{O}\gamma)$ 1981Bo16,1982Kr03 $^{171}_{68}\text{Er}_{103}$