

$^{185}\text{Re}(\text{d,t}),(^3\text{He},\alpha)$ 1976El12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

$J^\pi(\text{target})=5/2^+$.

93.7% enriched ^{185}Re target; Enge split-pole spectrograph with nuclear emulsions.

$E(\text{d})=17$ MeV, FWHM=9 keV, $\theta(\text{lab})=30^\circ, 50^\circ$.

$E(^3\text{He})=28$ MeV, FWHM=23 keV, $\theta(\text{lab})=40^\circ$.

For authors' J^π and band assignments, see Adopted Levels.

 ^{184}Re Levels

$E(\text{level})^\dagger$	J^π	$d\sigma/d\Omega(\text{d,t})$ $50^\circ^\ddagger$	Comments
0.0 [#]	3 ⁻	198	$d\sigma/d\Omega(\text{d,t})=202$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.9$ At 40° .
56 [@] 3	2 ⁻	27	$d\sigma/d\Omega(\text{d,t})=26$ At 30° .
74 ^a 3	2 ⁻	74	$d\sigma/d\Omega(\text{d,t})=76$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.7$ At 40° .
105 [#] 3	4 ⁻	116	$d\sigma/d\Omega(\text{d,t})=108$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=3.4$ At 40° .
142 [@] 3	2 ⁻	204 ^g	$d\sigma/d\Omega(\text{d,t})=196$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=3.9$ At 40° for doublet.
142 ^a 3	3 ⁻	204 ^g	$d\sigma/d\Omega(\text{d,t})=196$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=3.9$ At 40° for doublet.
188 ^b 3	8 ⁺	10	$d\sigma/d\Omega(\text{d,t})=5$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=10.4$ At 40° .
236 [#] 3	5 ⁻	30	$d\sigma/d\Omega(\text{d,t})=21$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=7.9$ At 40° for 236+241+252 triplet.
241 ^a 3	4 ⁻	48	$d\sigma/d\Omega(\text{d,t})=56$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=7.9$ At 40° for 236+241+252 triplet.
252 [@] 3	3 ⁻	88	$d\sigma/d\Omega(\text{d,t})=92$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=7.9$ At 40° for 236+241+252 triplet.
311 ^d 3	4 ⁻	91	$d\sigma/d\Omega(\text{d,t})=87$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.7$ At 40° .
348 ^{&} 3	6 ⁻	73	$d\sigma/d\Omega(\text{d,t})=59$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=3.3$ At 40° .
370 ^a 3	5 ⁻	13	$d\sigma/d\Omega(\text{d,t})=9$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.4$ At 40° .
388 [@] 3	4 ⁻	41	$d\sigma/d\Omega(\text{d,t})=46$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.1$ At 40° for 388+398 doublet.
398 [#] 3	6 ⁻	7	$d\sigma/d\Omega(\text{d,t})=46$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.1$ At 40° for 388+398 doublet.
440 ^b 3	9 ⁺	37 ^g	$d\sigma/d\Omega(\text{d,t})=22$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=22.0$ At 40° for doublet.
440 ^e 3	1 ⁻	37 ^g	$d\sigma/d\Omega(\text{d,t})=22$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=22.0$ At 40° for doublet.
474 ^d 3	5 ⁻	47 ^g	$d\sigma/d\Omega(\text{d,t})=37$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=13.3$ At 40° for doublet.
474 ^f 3	4 ⁺	47 ^g	$d\sigma/d\Omega(\text{d,t})=37$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=13.3$ At 40° for doublet.
498 ^e 3	2 ⁻	22	$d\sigma/d\Omega(\text{d,t})=20$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.6$ At 40° .
525 ^a 3	6 ⁻	6	$d\sigma/d\Omega(\text{d,t})=4$ At 30° .
549 [@] 3	5 ⁻	22	$d\sigma/d\Omega(\text{d,t})=18$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=0.8$ At 40° .
581 ^e 3	3 ⁻	15	$d\sigma/d\Omega(\text{d,t})=8$ At 30° .
590 ^f 3	5 ⁺	30 ^g	$d\sigma/d\Omega(\text{d,t})=19$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=27.2$ At 40° for doublet.
590 ^c 3	7 ⁺	30 ^g	$d\sigma/d\Omega(\text{d,t})=19$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=27.2$ At 40° for doublet.
602 3			
661 ^d 3	6 ⁻	13	$d\sigma/d\Omega(\text{d,t})=11$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=0.7$ At 40° .
693 ^e 3	4 ⁻	6	$d\sigma/d\Omega(\text{d,t})=3$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=1.5$ At 40° .
704 3		7	$d\sigma/d\Omega(\text{d,t})=5$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=39$ At 40° for E=704 through 793 multiplet.
729 3		6	$d\sigma/d\Omega(\text{d,t})=4$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=39$ At 40° for E=704 through 793 multiplet.
741 ^f 3	6 ⁺	31	$d\sigma/d\Omega(\text{d,t})=23$ At 30° for 741+751 doublet; $d\sigma/d\Omega(^3\text{He},\alpha)=39$ At 40° for E=704 through 793 multiplet.
751 ^c 3	8 ⁺	22	$d\sigma/d\Omega(\text{d,t})=23$ At 30° for 741+751 doublet; $d\sigma/d\Omega(^3\text{He},\alpha)=39$ At 40° for E=704 through 793 multiplet.
783 3		12	$d\sigma/d\Omega(\text{d,t})=8$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=39$ At 40° for E=704 through 793 multiplet.
793 3		9	$d\sigma/d\Omega(\text{d,t})=10$ At 30° ; $d\sigma/d\Omega(^3\text{He},\alpha)=39$ At 40° for E=704 through 793 multiplet.
816 3		164	$d\sigma/d\Omega(\text{d,t})=204$ At 30° for 816+824 doublet; $d\sigma/d\Omega(^3\text{He},\alpha)=4.7$ At 40° .
824 3		60	$d\sigma/d\Omega(\text{d,t})=204$ At 30° for 816+824 doublet.

Continued on next page (footnotes at end of table)

$^{185}\text{Re}(\text{d,t}),(^3\text{He},\alpha)$ 1976EI12 (continued) **^{184}Re Levels (continued)**

E(level) [†]	J ^π	dσ/dΩ(d,t) 50° [‡]	Comments
864 3		76	dσ/dΩ(d,t)=67 At 30°; dσ/dΩ(³ He,α)=16 At 40°.
881 3		203	dσ/dΩ(d,t)=184 At 30°.
910 3		146	dσ/dΩ(d,t)=165 At 30°; dσ/dΩ(³ He,α)=21 At 40°.
953 3		399	dσ/dΩ(d,t)=334 At 30°.
964 ^c 3	9 ⁺		dσ/dΩ(³ He,α)=38 At 40°.
988 3		27	dσ/dΩ(d,t)=23 At 30°.
1003 3		146	dσ/dΩ(d,t)=139 At 30°.

[†] From (d,t). Authors state uncertainties are 2-3 keV for the stronger groups. The evaluator has assigned 3 keV uncertainty for all data; only two energies deviate by more than 3 keV from energies deduced from E_γ data in Adopted Gammas.

[‡] dσ/dΩ(c.m.) In μb/sr for (d,t) reaction At 50°. 1976EI12 also report dσ/dΩ (μb/sr) At 30° for (d,t) and At 40° for (³He,α); these data are given In comments on the relevant level. the uncertainty In absolute dσ/dΩ is ≈25%.

Band(A): K^π=3⁻ ((π 5/2[402])+(ν 1/2[510])) band.

@ Band(B): K^π=4⁻ ((π 5/2[402])+(ν 3/2[512])) band.

& Band(C): K^π=6⁻ ((π 5/2[402])+(ν 7/2[503]))? band.

^a Band(D): K^π=2⁻ ((π 5/2[402])-(ν 1/2[510])) band.

^b Band(E): K^π=8⁺ ((π 5/2[402])+(ν 11/2[615])) band.

^c Band(F): K^π=7⁺ ((π 5/2[402])+(ν 9/2[624]))? band.

^d Band(G): K^π=1⁻ ((π 5/2[402])-(ν 3/2[512])) band.

^e Band(H): K^π=1⁻ ((π 5/2[402])-(ν 7/2[503]))? band.

^f Band(I): K^π=3⁺ ((π 5/2[402])-(ν 11/2[615]))? band.

^g For unresolved doublet.

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**Band(F): $K^\pi=7^+$ ($(\pi$
 $5/2[402])+(\nu$
 $9/2[624])$)? band**

9⁺ 964

8⁺ 751

**Band(B): $K^\pi=4^-$ ($(\pi$
 $5/2[402])+(\nu$ $3/2[512])$)
band**

5⁻ 549

**Band(D): $K^\pi=2^-$ ($(\pi$
 $5/2[402])-(\nu$ $1/2[510])$)
band**

6⁻ 525

7⁺ 590

**Band(A): $K^\pi=3^-$ ($(\pi$
 $5/2[402])+(\nu$ $1/2[510])$)
band**

6⁻ 398

4⁻ 388

**Band(C): $K^\pi=6^-$ ($(\pi$
 $5/2[402])+(\nu$
 $7/2[503])$)? band**

6⁻ 348

**Band(E): $K^\pi=8^+$ ($(\pi$
 $5/2[402])+(\nu$
 $11/2[615])$) band**

9⁺ 440

5⁻ 370

5⁻ 236

3⁻ 252

4⁻ 241

8⁺ 188

2⁻ 142

3⁻ 142

4⁻ 105

2⁻ 74

2⁻ 56

3⁻ 0.0

$^{185}\text{Re}(\text{d,t}),(^3\text{He},\alpha)$ 1976El12 (continued)

		Band(I): $K^\pi=3^+$ ((π 5/2[402])-(ν 11/2[615]))? band	
		<u>6⁺</u>	<u>741</u>
		Band(H): $K^\pi=1^-$ ((π 5/2[402])-(ν 7/2[503]))? band	
		<u>4⁻</u>	<u>693</u>
Band(G): $K^\pi=1^-$ ((π 5/2[402])-(ν 3/2[512])) band			
<u>6⁻</u>	<u>661</u>		
		<u>5⁺</u>	<u>590</u>
		<u>3⁻</u>	<u>581</u>
		<u>2⁻</u>	<u>498</u>
<u>5⁻</u>	<u>474</u>	<u>4⁺</u>	<u>474</u>
		<u>1⁻</u>	<u>440</u>
<u>4⁻</u>	<u>311</u>		