

$^{249}\text{Cf}(\text{d,p})$ 1976Ya02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Y. Akovali	NDS 94,131 (2001)	1-Aug-2001

$E(\text{d})=12$ MeV.

Interaction between neutron and proton states were discussed by [1976Ya02](#).

 ^{250}Cf Levels

The authors of [1976Ya02](#) utilized results from their $^{249}\text{Cf}(\alpha,\text{t})$ reaction and earlier work on ^{250}Es ε decay in their J^π and configuration assignments. Since the ^{249}Cf g.s. has the N 9/2[734] configuration, the two-quasineutron states, with one in the N 9/2[734] Nilsson state, are expected to be strongly excited in (d,p). As indicated by the intense γ transition between the 5^- states observed in 8.6-H ^{250}Es ε decay, the two $K^\pi=5^-$ two-quasiparticle bands are strongly mixed. Only the dominant two-quasiparticle components of the bands are given.

$E(\text{level})^\dagger$	J^π^\ddagger	Comments
1210		this level is probably the $2^-, (n\ 9/2[734], n\ 5/2[622])$ state assigned by 1980Ah03 in 2.22-H ^{250}Es ε decay.
1255#	4^-	
1311#	5^-	
1378#	6^-	
1396@	5^-	
1458@	6^-	
1478&	5^-	
1500 ^a	6^-	
≈ 1530 @	7^-	
≈ 1550 &	6^-	
≈ 1575 ^a	7^-	
≈ 1600	6^-	

[†] [1976Ya02](#) did not list their measured energies; the spectrum taken is shown in a figure and the peaks on the spectrum are identified by their J^π 's and band assignments. Energies given here are rounded-off values those in the Adopted Levels. If the level is observed only in (d,p), its energy is estimated by the evaluator from authors' figure. Unidentified weaker peaks, possibly at 1297, 1335, and 1427 MeV are not listed here.

[‡] Assignments made by [1976Ya02](#).

Band(A): $K^\pi=4^-$ band. Configuration: (n 9/2[734], n 1/2[620]). The assignment was based on the target ^{249}Cf state n 9/2[734], coupled with the lowest energy neutron state yielding $J^\pi=4^-$, determined in the decay work.

@ Band(B): $K^\pi=5^-$ band. Configuration: (p 3/2[521], p 7/2[633]). This band is populated in (d,p) because of its admixture with the $5^-, (n\ 9/2[734], n\ 1/2[620])$ band.

& Band(C): $K^\pi=5^-$ band. Dominant configuration: (n 9/2[734], n 1/2[620]). See a note on $K^\pi=4^-$ band for arguments on configuration assignment.

^a Band(D): $K^\pi=6^-$ band. Configuration: (n 9/2[734], n 3/2[622]).

$^{249}\text{Cf}(\text{d,p})$ 1976Ya02Band(D): $K^\pi=6^-$ band 7^- ≈ 1575 Band(C): $K^\pi=5^-$ band 6^- ≈ 1550 Band(B): $K^\pi=5^-$ band 7^- ≈ 1530 6^- 1500 5^- 1478 6^- 1458 5^- 1396Band(A): $K^\pi=4^-$ band 6^- 1378 5^- 1311 4^- 1255