

${}^{38}\text{Ar}({}^3\text{He,t})$  1979Br01

Type	Author	History Citation	Literature Cutoff Date
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**1979Br01:** E=40 MeV  ${}^3\text{He}$  beam was produced from the Berkeley 88-inch cyclotron. Target was argon gas (94.4% enriched in  ${}^{38}\text{Ar}$ ). Reaction products were detected by  $\Delta E$ -E telescopes (FWHM=75 keV). Measured  $\sigma(\theta)$ . Deduced levels, J,  $\pi$ , L-transfers from DWBA and coupled-channel analyses. The details of angular distribution results are given in a 27-page AIP document: PAPS PRVCA-19-19-27.

 ${}^{38}\text{K}$  Levels

E(level) <sup>†</sup>	J $\pi$ <sup>‡</sup>	L <sup>#</sup>	Comments
0	3 <sup>+</sup>	4	
130	0 <sup>+</sup>	0	
460	1 <sup>+</sup>	@	L: $\sigma(\theta)$ does not fit L=0 or 2; reasonable fit with L=1 that contradicts parity selection rule.
1700	1 <sup>+</sup>	2	
2400	2 <sup>+</sup>	@	L: $\sigma(\theta)$ does not fit L=2.
2630			L: 3,4,5.
2880		(2,4)	
3340		(2,4)	
3440		(2,4)	
3690			L: 2 to 6.
3850			L: 2 to 5.
3980		(2,4)	
4232		(2,4)	
4340			L: 2 to 5.
4620			L: 3,4,5.
4690		(2,4)	
5080		(2,4)	
5260		(2,4)	
5350			L: 3 to 6.
5468			
5623			L: 2 to 5.
5840			L: 2 to 5.
6010			L: 2,3,5.
6230			L: 2 to 5.
6380		(2,4)	
7730			L: 1 to 5.

<sup>†</sup> Above 2400 level, many of the groups may be multiplets, especially above 5 MeV, where the level density is high.

<sup>‡</sup> From Adopted Levels.

<sup>#</sup> Above 2400 level, multiple L values deduced from  $\sigma(\theta)$  are given which are listed in figure 4 of 1979Br01.

@ Two-step effects such as  $({}^3\text{He},\alpha)+(\alpha,t)$  may be responsible for poor fit with L=0 or 2.