$^{238}U(d,^{6}Li)$ 1981Ja01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108, 681 (2007)	1-Jun-2006

E(d)=54.8 MeV (1981Ja01).

Absolute reduced α widths for the transitions to the ground-state band members were obtained by 1981Ja01 from finite-range distorted-wave analysis. α intensities and reduced hindrance factors deduced from (d,^{6}Li) reaction α widths were compared with the α intensities and reduced hindrance factors from ^{238}U decay. Close agreement between them was interpreted as indicating a predominant direct α-transfer mechanism in (d,^{6}Li) reaction.

Angular distributions were measured by 1980Ja09; calculations for angular distributions were done with different r(0) parameters, and compared with their data.

In an earlier work, 1975Be01, the authors measured (d,^{6}Li) ground-state cross sections at E(d)=35 MeV on various targets; the α-spectroscopic factors were deduced; their variations with mass numbers were studied.

^{234}Th Levels

E(β,d,E) Estimated bandhead of a presumed rotational band. No attempts were made to resolve the levels within the proposed K=0 bands.

E(level)[†]	J^{π}[‡]
0[#]	0^+
50[#]	2^+
160[#]	4^+
331[#]	6^+
555[#]	8^+
810 *30*	0^+
1150 *40*	0^+
1470 *40*	0^+

[†] From 1981Ja01; the energy resolution is 80 keV FWHM.

[‡] From 1981Ja01. Angular distributions for transitions to the members of the ground-state rotational band were compared by 1981Ja01 with DWBA calculations. Although the levels were not fully resolved, the individual cross sections for these levels were extracted by using peak-fitting procedures. The 2^+ state was found to be populated most intensely. Assignments to the excited 0^+ states were based on systematics of 0^+ states in the actinide region and on predictions from the interacting boson model. Four-point angular distributions for transitions to the unresolved levels within the bands were taken. Comparison with DWBA calculations indicated that L=2 is the dominant component of the unresolved group of levels as was found also for the ground-state band.

[#] Band(A): g.s. band. The 0^+ and 2^+ members were not fully resolved. The energies of 2^+ and 4^+ levels were taken from previous works; the energies of 6^+ and 8^+ states were estimated by 1981Ja01.

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Band(A): g.s. band

8^+ 555

6^+ 331

4^+ 160

2^+ 50

0^+ 0

$^{234}_{90}Th_{144}$