^{9}Be(^{76}Rb,^{76}Srγ),(^{80}Y,^{76}Srγ) 2012Le05,2020Ll01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Jun Chen and Ameenah R. Farhan	NDS 194,3 (2024)	8-Jan-2024

Nucleon exchange, and nucleon removal reactions.

2012Le05: ^{9}Be(^{76}Rb,^{76}Srγ),E=104.5 MeV/nucleon beam of ^{76}Rb produced in ^{9}Be(^{78}Kr,X),E=140 MeV/nucleon. A1900 fragment separator used to separate ^{76}Rb and ^{78}Rb beams. Secondary target=376 mg/cm^2 ^{9}Be. Outgoing particles identified by time-of-flight and energy loss measurements using S800 spectrometer. The γ rays were detected with SeGA array of 15 Ge detectors at NSCL, MSU facility. Measured Eγ, Iγ, (^{76}Sr)γ-coin, lifetime of the first 2$^+$ state by DSAM for γ transition from the first 2$^+$ state.

2020Ll01: ^{9}Be(^{80}Y,^{76}Srγ),E=77 MeV/nucleon beam of ^{80}Y produced in ^{9}Be(^{92}Mo,X),E=140 MeV/nucleon at NSCL-MSU facility. A1900 fragment separator was used to separate the secondary beam of ^{80}Y. Secondary target=188 mg/cm^2 ^{9}Be. Outgoing particles were identified by time-of-flight and energy loss measurements using S800 spectrometer. The γ rays were detected with the GRETINA array of two rings with four detector modules centered at 58° and six modules at 90°, each module containing four 36-fold segmented HPGe crystals. Measured Eγ, Iγ, (^{76}Sr)γ-coin, Doppler line shape for γ transition from the first 2$^+$ state. Deduced B(E2).

^{76}Sr Levels

E(level)†	J$^\pi$‡	T$_{1/2}$	Comments
0.0	0$^+$		
262.3	2$^+$	193 ps *25*	T$_{1/2}$: weighted averaged mean lifetime τ=278 ps *36* from τ=250 ps *44* (2020Ll01) and τ=296 ps *36* (2012Le05, T$_{1/2}$ of 205 ps *25* from T$_{1/2}$=207 ps *+16−14* at forward angles and T$_{1/2}$=203 ps *+18−16* at backward angles); from DSAM in both the studies. Deduced β_2=0.45 *3* from T$_{1/2}$ (2012Le05). Inclusive population=51% *12* (2012Le05).
746.7	4$^+$		Inclusive population=36% *8* (2012Le05).
1446.3	6$^+$		
2340.5	8$^+$		

† Rounded values from Adopted Levels.
‡ As proposed in 2012Le05.

γ(^{76}Sr)

E$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
261.6 *5*	262.3	2$^+$	0.0	0$^+$	E2	E$_\gamma$: from 2020Ll01. B(E2)=0.222 *27* (2012Le05), 0.239 *24* (2020Ll01).
484.4	746.7	4$^+$	262.3	2$^+$		
699.6	1446.3	6$^+$	746.7	4$^+$		
894.2	2340.5	8$^+$	1446.3	6$^+$		

† From Adopted Gammas, unless otherwise stated.

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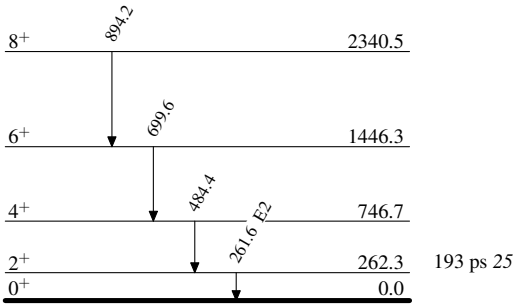
Level Scheme



$^{76}_{38}Sr_{38}$