^{58}Ni(^{36}Ar,2nγ) 2011Ce01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

First study of excited states in N=Z=46 nuclide.

E(^{36}Ar)=111 MeV obtained from the CIME cyclotron at GANIL; 99.83% enriched 6.0 mg/cm^2 ^{58}Ni foil target; DIAMANT array (80 CsI scintillators) for charged-particle detection; Neutron Wall (50 liquid scintillators) for neutron detection; EXOGAM array (7 segmented clover Ge detectors placed at 90°, 4 at 135°) for γ detection; measured Eγ, Iγ, $\gamma\gamma$ coin, n-γ coin, (particle)-γ coin.

Relative yield of 2n-channel is very weak, $\approx <10^{-5}$ of the total fusion cross section. The γ rays due to ^{92}Pd were identified by comparing spectra of γ rays in coin with two neutrons and no charged particles with γ-ray spectra in coin with other combinations of neutrons and charged particles. Comparisons made with shell-model calculations.

^{92}Pd Levels

E(level)[†]	J$^\pi$[†]
0.0[‡]	0$^+$
873.6[‡] *2*	(2$^+$)
1786.0[‡] *3*	(4$^+$)
2535.8[‡] *5*	(6$^+$)

[†] The placement of the γ rays is based on Iγ. Since no angular distribution analysis could be done, J$^\pi$ assignments of excited states are tentative, but consistent with authors' shell-model calculations.

[‡] Band(A): g.s. band.

γ(^{92}Pd)

874γ-912γ-750γ form a $\gamma\gamma$ cascade (from coincidence data).

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
749.8 *3*	50 *6*	2535.8	(6$^+$)	1786.0	(4$^+$)
873.6 *2*	100 *8*	873.6	(2$^+$)	0.0	0$^+$
912.4 *2*	77 *5*	1786.0	(4$^+$)	873.6	(2$^+$)

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Level Scheme

Intensities: Relative I_γ

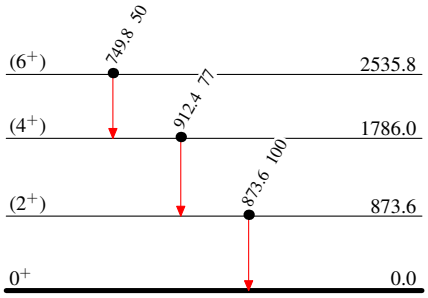
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

Coincidence



$^{92}_{46}Pd_{46}$

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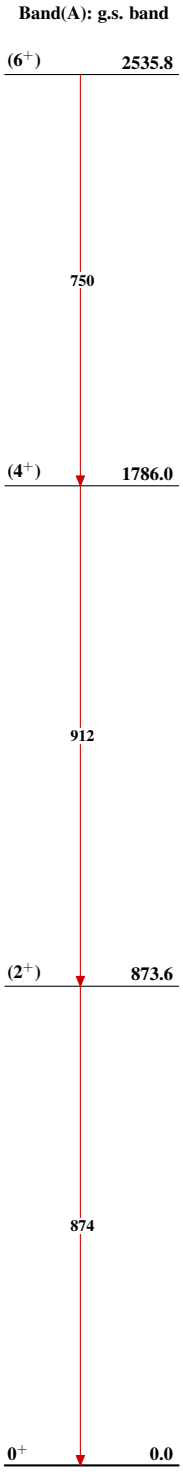

$^{92}_{46}Pd_{46}$