

$^1\text{H}(^{34}\text{Si},\text{p})$:resonances **2012Im01**

2012Im01: a ^{34}Si beam at 4.4(12) MeV/nucleon was produced by projectile fragmentation of a 63 MeV/nucleon ^{40}Ar primary beam and was separated by the RIKEN projectile fragment separator (RIPS). The secondary target was a 10.9(5) mg/cm² polyethylene film. Particles were detected and identified by a $\Delta\text{E-E}$ telescope (FWHM=130 keV) consisting of three silicon detectors mounted at 0°. Measured excitation function of proton elastic scattering for $\theta_{\text{lab}} < 10^\circ$ using thick target inverse kinematics. Deduced E_{R} , L-transfer, Γ_{p} , and Γ from R-matrix analysis for 8 states in ^{35}P , which are isobaric analog resonances (IAR) of ^{35}Si states.

 ^{35}P Levels

<u>E(level)[†]</u>	<u>Γ</u>	<u>L</u>	<u>S^{\ddagger}</u>	<u>Comments</u>
14938 24	<12.7 keV	0		$E_{\text{R}}=2783$ 24, $\Gamma_{\text{p}}=4.6$ keV 28, $\Gamma=4.6$ keV 81 in 2012Im01 .
15161 3	<4.4 keV	3	0.63 16	$E_{\text{R}}=3006$ 2, $\Gamma_{\text{p}}=1.6$ keV 4, $\Gamma=1.6$ keV 28 in 2012Im01 . IAR of the $7/2^-$ g.s. of ^{35}Si .
15306 24	<30.4 keV	2	0.19 15	$E_{\text{R}}=3151$ 24, $\Gamma_{\text{p}}=3.3$ keV 27, $\Gamma=10.4$ keV 200 in 2012Im01 .
15964 18	84 keV 25	2	0.79 20	$E_{\text{R}}=3809$ 18, $\Gamma_{\text{p}}=26.7$ keV 69 in 2012Im01 .
16145 36	0.35 MeV 9	1	1.37 32	$E_{\text{R}}=3990$ 36, $\Gamma_{\text{p}}=185$ keV 43, $\Gamma=354$ keV 87 in 2012Im01 .
16605 44	0.22 MeV 15	0	0.45 28	$E_{\text{R}}=4450$ 44, $\Gamma_{\text{p}}=58.4$ keV 370, $\Gamma=215$ keV 150 in 2012Im01 .
17254 12	<11.6 keV	2	0.04 1	$E_{\text{R}}=5099$ 12, $\Gamma_{\text{p}}=3.8$ keV 9, $\Gamma=3.8$ keV 78 in 2012Im01 .
17355 15	32 keV 22	1	0.12 7	$E_{\text{R}}=5200$ 15, $\Gamma_{\text{p}}=20.9$ keV 120 in 2012Im01 .

[†] Excitation energies are deduced by evaluators from $E_{\text{R}}+S_{\text{p}}(^{35}\text{P})=12155.1$ 20 (**2021Wa16**). E_{R} given in **2012Im01** are in center of mass system.

[‡] Spectroscopic factors are derived from Γ_{p} using the formula from **1968Th07** as described in **2012Im01**.