^{1}H(^{34}Si,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/cm^2 polyethylene film. Particles were detected and identified by a ΔE-E telescope (FWHM=130 keV) consisting of three silicon detectors mounted at 0°. Measured excitation function of proton elastic scattering for $\theta_{lab} < 10°$ 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

E(level)†	Γ	L	S‡	Comments
14938 *24*	<12.7 keV	0		E_R=2783 *24*, Γ_p=4.6 keV *28*, Γ=4.6 keV *81* in 2012Im01.
15161 *3*	<4.4 keV	3	0.63 *16*	E_R=3006 *2*, Γ_p=1.6 keV *4*, Γ=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_R=3151 *24*, Γ_p=3.3 keV *27*, Γ=10.4 keV *200* in 2012Im01.
15964 *18*	84 keV *25*	2	0.79 *20*	E_R=3809 *18*, Γ_p=26.7 keV *69* in 2012Im01.
16145 *36*	0.35 MeV *9*	1	1.37 *32*	E_R=3990 *36*, Γ_p=185 keV *43*, Γ=354 keV *87* in 2012Im01.
16605 *44*	0.22 MeV *15*	0	0.45 *28*	E_R=4450 *44*, Γ_p=58.4 keV *370*, Γ=215 keV *150* in 2012Im01.
17254 *12*	<11.6 keV	2	0.04 *1*	E_R=5099 *12*, Γ_p=3.8 keV *9*, Γ=3.8 keV *78* in 2012Im01.
17355 *15*	32 keV *22*	1	0.12 *7*	E_R=5200 *15*, Γ_p=20.9 keV *120* in 2012Im01.

† Excitation energies are deduced by evaluators from $E_R+S_p(^{35}P)$=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.