

$\text{C}(^{36}\text{Mg}, ^{35}\text{Na}\gamma)$ 2014Do05

2014Do05: A 345-MeV/nucleon ^{48}Ca primary beam was accelerated by the superconducting ring cyclotron (SRC) at RIKEN. A-236-MeV/nucleon ^{36}Mg secondary beam was produced by the fragmentation of ^{48}Ca on a Be target and separated by the BigRIPS separator using the $\text{B}\rho$ - ΔE - $\text{B}\rho$ method. The secondary reaction targets were 2.54 g/cm² thick carbon and 2.13 g/cm² thick CH₂ polyethylene. The secondary reaction products were identified by the magnetic spectrometer ZeroDegree using the $\text{B}\rho$ - ΔE - $\text{B}\rho$ method. γ rays in coincidence with ^{35}Na were detected using the DALI2 array of 186 large NaI(Tl) detectors. Measured E_γ with Doppler correction, I_γ , and $\gamma\gamma$ -coin. Deduced levels, J, π , and bands. Compared with shell-model calculations using the SPDF-M effective interaction.

 ^{35}Na Levels

<u>$E(\text{level})^\dagger$</u>	<u>J^π^\ddagger</u>
0 [#]	(3/2 ⁺)
373 [#] 5	(5/2 ⁺)
1014 [#] 17	(7/2 ⁺)

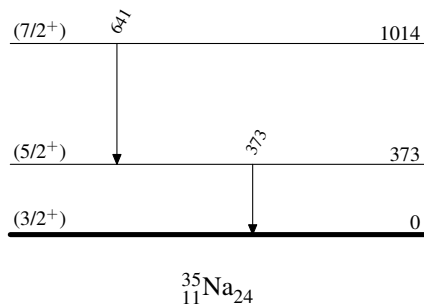
[†] From a least-squares fit to γ -ray energies.

[‡] From shell-model calculations.

[#] Band(A): $K^\pi=(3/2^+)$ rotational band predicted by the shell model.

 $\gamma(^{35}\text{Na})$

<u>E_γ</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>
373 5	373	(5/2 ⁺)	0	(3/2 ⁺)
641 16	1014	(7/2 ⁺)	373	(5/2 ⁺)

 $\text{C}(^{36}\text{Mg}, ^{35}\text{Na}\gamma)$ 2014Do05Level Scheme

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**Band(A): $K^\pi=(3/2^+)$
rotational band
predicted by the shell
model**

($7/2^+$) **1014**

641

($5/2^+$) **373**

373

($3/2^+$) **0**

$^{35}_{11}\text{Na}_{24}$