C(¹⁴Be,¹³Be) 2007Si24

	History		
Туре	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. E. Purcell	NDS 198,1 (2024)	1-Aug-2024

2001La02, 2003LeZX, 2003JoZZ: ¹²C(¹⁴Be,¹³Be*) at E=35 MeV/nucleon. The ¹²Be+n relative energy spectrum was reconstructed at GANIL using the DeMoN array to measure neutrons and a 5×5 cm² position sensitive Δ E-E telescope. The relative energy spectrum is is consistent with a low-lying s-wave state having a scattering length a_s=-20 fm and a higher-lying state at E_{rel}=2 MeV with $\Gamma \approx 0.5$ MeV. The longitudinal momentum distribution of neutrons following ¹⁴Be breakup were also reported.

2007Si24: ¹²C(¹⁴Be,¹³Be*) at E=287 MeV/nucleon. Measured ¹²C(¹⁴Be,¹²Be+n) at GSI using the ALADIN–LAND facility. A beam of ¹⁴Be ions impinged on a 1.29 g/cm² carbon target and residual ¹²Be ions were momentum analyzed using the ALADIN spectrometer while neutrons were characterized using the LAND/Large Area Neutron Detector. A low-energy state is observed with the scattering length a_s =-3.2 fm; this state is considered a virtual *s*-wave state. At higher energies, the relative energy spectrum agrees with two previously reported ¹²Be+n resonances at E=2.00 MeV 5 and 3.04 MeV 7 with Γ =0.3 MeV and 0.4 MeV, respectively (1998Be28,1998Go30,1992Os04). The discussion highlights the need for n+¹²Be+ γ coincidence data. See preliminary reports of the results in (2001AIZZ, 2004Si12).

¹³Be Levels

E(level) [‡]	\mathbf{J}^{π}	Γ^{\dagger}	$E_{c.m.}(^{12}Be+n) (MeV)^{\dagger}$	Comments
х	1/2+			E(level): Low-energy strength is observed corresponding to a scattering of $a=-3.2 \frac{9}{11}$ fm (2007Si24). E(level): This group was later associated with decay from the high-energy tail of the $J^{\pi}=5/2^{+}$ state to ¹² Be [*] (2.1 MeV; $J^{\pi}=2^{+}$).
1.55×10^{3} 2.59×10^{3}	5/2+ 1/2-	0.3 MeV 0.4 MeV	2.00 5 3.04 7	

[†] From (2007Si24).

[‡] The ground state is taken as $E_{c.m.}(n+{}^{12}Be_{g.s.})=0.45$ MeV 1; see Adopted Levels.