

Table 12.4 from (2017KE05): He + He cluster states observed in ^1H , $^{12}\text{C} + ^{12}\text{Be}$ reactions

E_x^a (MeV)	J^a	E_x^b (MeV)	J^b	E_x^c (MeV)	E_x^d (MeV)	J^π^e	E_x (MeV)	Γ^k (MeV)	E_x (MeV)	J^π^n	$\Gamma^{l,m}$ (MeV)
							10.2 ^f	broad	10.3 ^l	(0 ⁺)	1.5 ± 0.2
									11.7 ^m	(2 ⁺)	≈ 1
		12.1	4		12.1				12.1 ^l	(2 ⁺)	
13.2	4	13.0	4			4 ⁺	12.8 ^{f,j}	≈ 1.5			
		13.9	4	14.1	14.1		13.5 ^g		13.3 ^m	(4 ⁺)	≈ 1
14.9		14.7					$\approx 14.5^g$		13.6 ^l	(4 ⁺)	
		(15.4)			15.1		15.5 ^{f,j}	≈ 1.5			
16.1	6	16.6		16.0	16.5	6 ⁺					
17.8	6	(17.7)		17.4			(17.7) ^h	$\approx 350 \text{ keV}$			
18.6	6	(18.4)		18.2							
19.3	6	(19.3)		19.4							
20.9	8	(20.8)		20.7		8 ⁺					
22.8											
(24.0)											
(25.1)							25 ⁱ	370 keV			
							28 ⁱ	2.7			

^a ^1H , $^{12}\text{C}(^{12}\text{Be}, ^6\text{He} + ^6\text{He})$: all data combined $\Delta E_x \approx 0.5 \text{ MeV}$ (1999FR04, 2001FR02).

^b $^{12}\text{C}(^{12}\text{Be}, \alpha + ^8\text{He})$ (1999FR04).

^c $^1\text{H}(^{12}\text{Be}, \alpha + ^8\text{He})$ (2001FR02).

^d $^{12}\text{C}(^{12}\text{Be}, \alpha + ^8\text{He})$ (2001FR02).

^e (2001FR02).

^f ^1H , $^{12}\text{C}(^{12}\text{Be}, \alpha + ^8\text{He})$ (2007CH81).

^g ^1H , $^{12}\text{C}(^{12}\text{Be}, ^6\text{He} + ^6\text{He})$ (2007CH81).

^h ^1H , $^{12}\text{C}(^{12}\text{Be}, t + ^9\text{Li})$ (2007CH81).

ⁱ ^1H , $^{12}\text{C}(^{12}\text{Be}, p + ^{11}\text{Li})$ (2007CH81).

^j Doublets.

^k (2007CH81).

^l $^{12}\text{C}(^{12}\text{Be}, ^4\text{He} + ^8\text{He})$ (2015YA05).

^m $^{12}\text{C}(^{12}\text{Be}, ^6\text{He} + ^6\text{He})$ (2015YA05).

ⁿ From DWBA (2015YA05).