The interest of the simple estimates corried out in app. 2F, Sect. 2.F.1 is not so much because of the actual numerical regults, For that we refer to the full, NFT microscopic calculation (Barranco et al 2001), and for the experimental test of the associated preductions carried out at TRIVMF Etanihata et al (2008)) and eventually analized, within the framework scororio, the framework of NFT in 2009 and published in Potel et al (2010). The interest of 2.F.I his on the simplicity of the estimates, which allows the role of the different mechanisms elementary modes of excitation participating to and the mechanism at the basis of it, to explicit themselves. Within this scenario in what follows we test the stability of the results which

the framework of Of the type  $|(p_{1/2}, s_{1/2})_1, \otimes 1^{-(q_i)})$ , This is true, but will the proviso that the associated  $\alpha$ -amplitude is explicited in this case to be  $\approx 10^{-2}$ , and that the final the best of case, within the most favorable of  $\alpha$  to riev to be seen ario. The formal corresponding to the final corresponding the first of the final scenario. Of (6.1.1) (d=0.7). In fact, the the despect component only in 11Li in symbiosis with the ground state, and "evaporates" when the this state is "removed" in the annihilated in the (pit) process. one could argue that (6.1.1) should contain another a-like component (D) ((0.45)2+(0.55)2+10.04)2=1/2). This positive, albeit indirect)
experimental result, funds strong (circumstantial) support
in the non Observation of the a state 1/2+ (1-8/3/2(17))/2+, (Tamihata et al 2008) ) is only 1/2 that expected from the two-particle (5) at rength associated with the phase space 15/2(0)>, 1P1/2(0)>, as predicted by the amplitude  $\alpha = 0.7 - (\alpha^2 \approx 1/2)$ , (as an extrabonus which reflects the normalization of 107 (Eq. (6.1,3)(3))

This of notice that it is not only the observation of the population of the first excited state of "Li with reaction "Li(p,t)" Li(")-; a 69 Mer) through the component (=0.1 of the halo pair addition mode wavefunction given in Eqs. (6,1.1) - (6,1,3) which confirms the predictions of the model, providing the first direct observation of phonon modicted payman in market but the equally imporof phonon mediated pouring in muclei, but the equally important, the confirmation that the absolute ground state two section associated with the ground state transition "Li(pit) Li(95) m

with respect to some of the inputs. (1/12/14/2 (More recent tudies than those available to Bortignon et al (1998) concerning the mmetry energy indicate V1 = 33 MeV THE STEE Vatles than 25 Mer, Furthermore, let us use 6% for the dipole EWSR (8%/ez). Thus 2×0.06 \frac{\frac{\tau^2 A}{2M}}{2M} = 0.12 \times 20 MeV fm^2 \times 11 \times 26.4 NeW fm? K, = -0.022 (33) nev fm-2 = -0.029 Nev fm-3 leading to -K1 x 2 x 6% EWSR =- (-0.029 New for 2) x 26,4 MeV for  $\approx 0.77 \text{ MeV}^2$ Consequently (FWpigmy) = (0,3 MeV) 2+0,77 MeV 2 = 0.86 Mer 2, and Two igny = 0,92 Mer. Similarly 12 = ( 2 × 0.92 MeV × 26.4 MeV fm²/(4,83)2fm²) (0,92 MeV)2/2)) = \(\left(\frac{2.1}{0.76}\right)^{\int} MeV^2 = 0.36 MeV^2; (1=0.6 MeV). One can then write M md = - 212 = - 0,72 mer = -0,8 mer = 0,92 mer Ecorr = 10.4 MeV - 0.1 MeV - 0.8 MeV = 0.5

Let us now carry a second test. [1/12/14] (3) Let in we the in control the TRK EWSF fact that the nucleus has both protons and neutron. That is replace to A/2M by Cof. Bohr and Mottelso (1975) p. 403, g.also Bortignon et al (1998) p.60) 14,8 NZ fm2 MeV = 14.8, 8x3 fm2 meV = 32,3 New fun2 Let us also use Vi= 33 MeV instead of 25 MeV. Thus K, = -0,49 × 33 fm<sup>-2</sup> MeV = -0,65 fm<sup>2</sup> MeV. Then, and in keeping with the fact of the explicit use of of 7 (core) we into duce also the overlaps of,

- O(K,0) x 2x 60/0 x 32, 3 MeV fm2 ≈ 0,17× 0,65 fm-2 MeV × 0,12× 32,3 NeW fm² ~ 0,43MeV2, and  $(\pi \omega_{\text{pigmy}})^2 = (0.3) \text{ MeV} + 0.43 \text{ NeV}^2$   $\approx 0.52 \text{ MeV}^2$ leading to thopigmy ~ 0.72 MeV.  $\Lambda^{2} = \left(\frac{2 \times 0.72 \text{ MeV} \times 2 \times 0.06 \times 32.3 \text{ MeV fm L/(4,83)}^{2} \text{ fmL}}{[(0.3)^{2} - (0.72)^{2}]^{2}}\right)$  $\approx \left(\frac{0.8}{0.4}\right)^{-1} \text{MeV}^2 \approx 0.5 \text{ MeV}^2, \left(1 \approx 0.7 \text{ MeV}\right).$ 

Finally

11/12/14 4

Mind = - 2x0,5 MeV = -1,4 MeV

and

Ecorr = 10,4 MeV-0,1 MeV-1,4 MeV | ~ 1 Mer

Thupigmy = 0,9 ± 0,2 MeV,

 $\Lambda \approx 0.6 \pm 0.1 \text{ MeV}$ 

Ecorr ≈ 0.6 ± 0.4 MeV.

The above estimates to gether with those of Section 2. F. 1 of app, 2. F mysly

1.00

0,7

summing, the different versions There of the above estimates ande from providing errors to the corresponding value, the the two essential things reach justerty of a many-both system is interweaved with many others. If one changes value if the at one of one of them you are likely to recognize that you have to change other because of consistency. (catentation, and greductions com errors,

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the framework of will the provise that the associated & amplitude as the provise that the associated & amplitude as the state in links to be fined at an entry of & torner to be set of and that the final see best of case, within the most forecast, or of & torner to corresponding to one could superficially expect from the longest comproment of the in symbiosis with the ground state, and evaporates in the sum that it is instanted in the set of evaporates in the sum that it is instanted as a sinilar lead in the set of evaporates in the sum that it is instanted as a sinilar lead in the set of evaporates in the sum that it is instanted as a sinilar lead in the set of evaporates in the sum that it is instanted as a sinilar lead in the set of evaporates in the sum that it is not only in a state 1/2 (1 & province). The sum observation of the phose space 15/2(0)), 1 ph/101), predicted by the amplitude of each two-particle.

Only 1/2 that expected from the state (22 1/2), (as an extroborus) is neclected by the normalization of 10? (E4(61)3)(3).

Dissortion of the first excited state of 21 in the reaction "Li(p,t) 2Li(1/2; 169,t) 2 in the first excited state of 21 in the reaction "Li(p,t) 2 Li(1/2; 169,t) 2 in the first excited state of 21 in the fall pair addition woode wavefunction given in Eqs. (6.1.1) f. (6.1.3.) which confirms the reduction of the model, providing the first direct observation with the confirmation that the absolute ground state two
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