

Lithium ground state

$$\Rightarrow E_n = -\frac{1}{2} m c^2 \alpha^2 \frac{Z^2}{n^2}$$



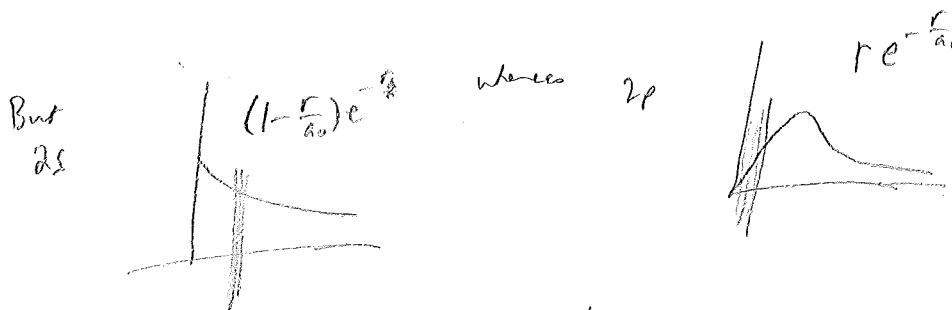
or



w/o interaction, b.o.R should be the same

How acct for interaction?

The inner shell electrons tend to reduce the effective Z from 3 to 1 (shielding)
 $\therefore$ reducing the binding (Φ the energy)



for the 1s sees the bare Z

In general, higher $l \Rightarrow$ further away $\Rightarrow$ shielded $\Rightarrow \Phi$ lower
 $\therefore l \uparrow \Rightarrow \Phi \downarrow$

$\therefore (2s) \text{ is lower energy}$

~~79~~
~~79~~
~~79~~
 79-1

13

79-2

7s

6d

5f

6s

6p

5d

4f

5s

5p

4d

4s

4p

3d

3s

3p

2s

2p

1s

83 86 88 90 92
 94 96 98 100
 79-7

