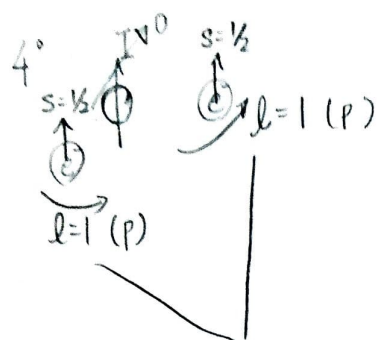


Hund's law:

1° 從低能階開始填 = 難度最大

2° 考慮最外層能量簡併軌域

3° 以 Si 為例，最外層 3p, 2e<sup>-</sup>



$$\left| \begin{array}{l} s: l=0 \\ p: l=1 \\ d: l=2 \end{array} \right.$$

$$|l=1\rangle \otimes |l=1\rangle \text{ Couple} \rightarrow |l_{tot}=2\rangle \otimes |l_{tot}=1\rangle \otimes |l_{tot}=0\rangle$$

$$\downarrow \quad \downarrow \quad \downarrow$$

Notation D P S

Symmetric Antisymmetric Symmetric

electron spin ↓ ↓ ↓

Antisymmetric Symmetric Antisymmetric

singlet triplet singlet

<sup>1</sup>D

<sup>3</sup>P

<sup>1</sup>S

↓  
Lowest energy