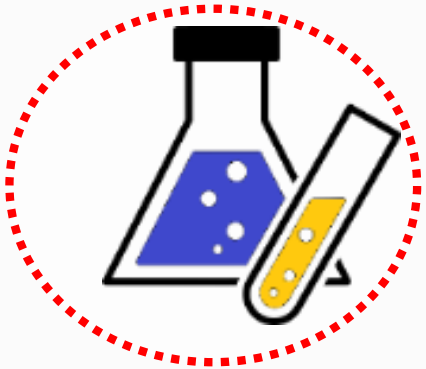
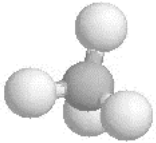
高中化學



[混成軌域]

HPSH

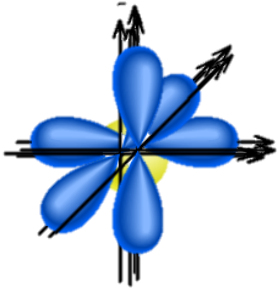
(CH_4)的立體結構



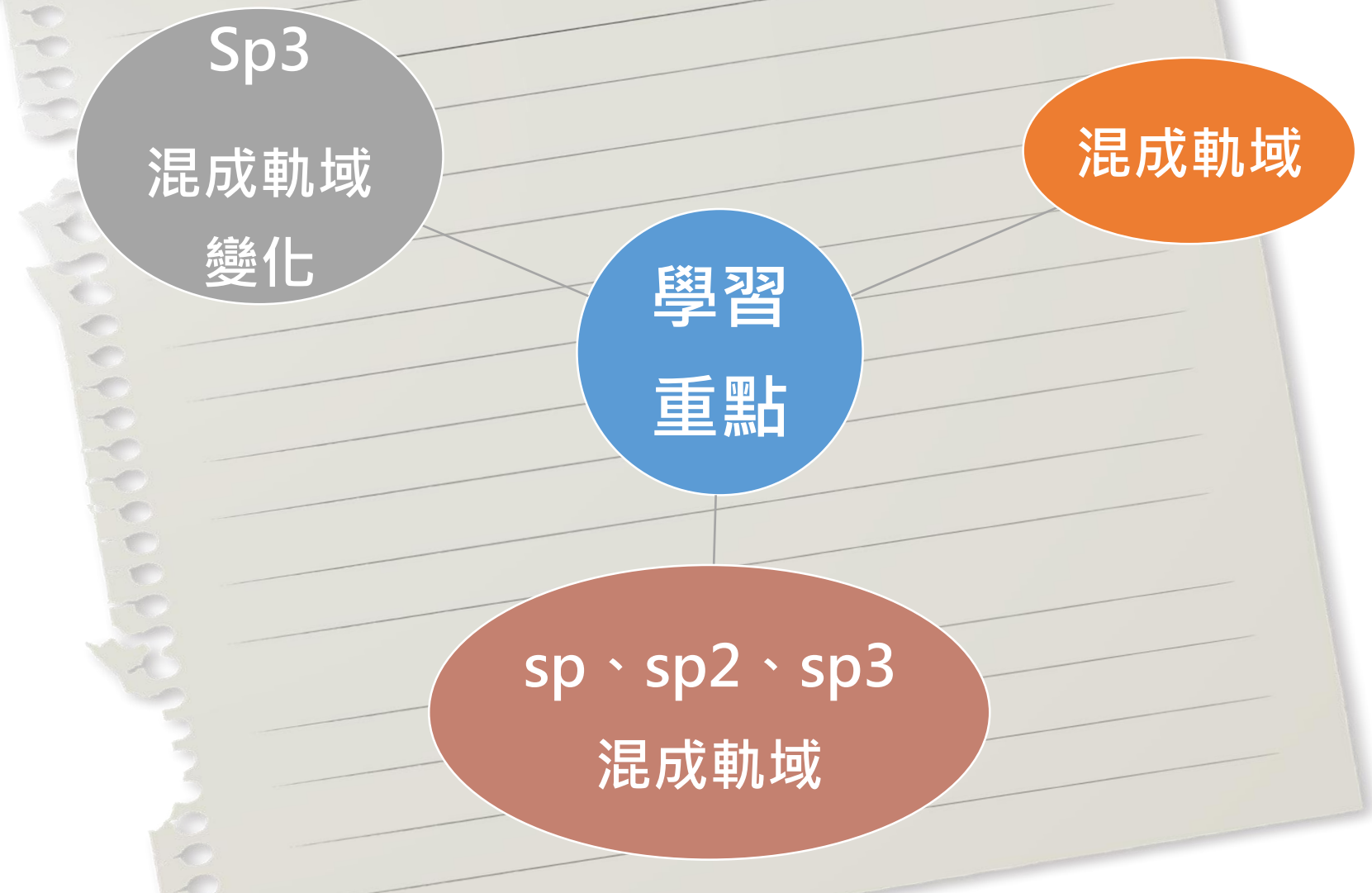
$2s^1 2p_x^1 p_y^1 p_z^1$

提升

碳的價軌域 $2s^2 2p_x^1 p_y^1 p_z^0$

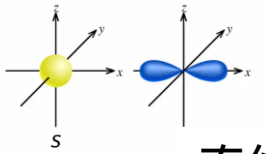


- **鮑林**認為在形成共價鍵的過程中，為使中心原子獲得較佳的成鍵效果，由**能量相近**的軌域重新組合，形成數個與原來軌域數相同的**混成軌域**

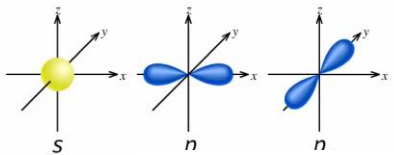

Sp3
混成軌域
變化
混成軌域
學習
重點
sp、sp2、sp3
混成軌域

混成軌域

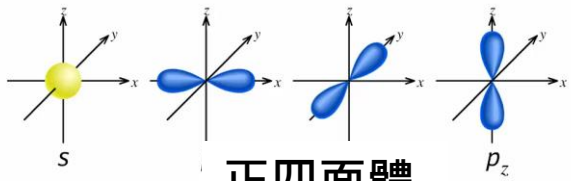
- 原子在相互結合時，其中心原子的價電子所佔有的價軌域可先經由電子的 提升，以增加 鍵結 數。
- 混成形成數個 能量 相等的 混成 軌域，再與鍵結原子的軌域結合。



直線



平面三角形

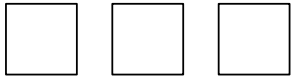


正四面體

- 軌域數：混成軌域總數 等於 參與混成之軌域總數。

能量高低：s < sp < sp^2 < sp^3 < p。

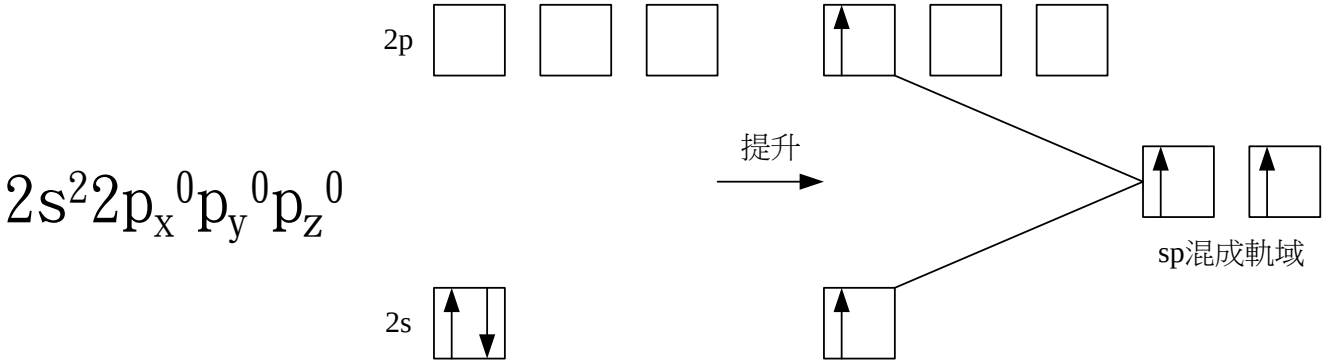
sp混成軌域 ($BeCl_2$)

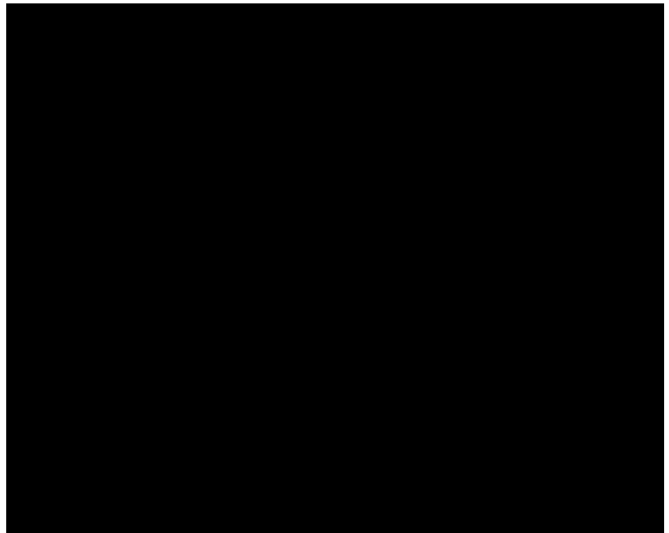
2p 

$2s^2 2p_x^0 p_y^0 p_z^0$

2s 

sp混成軌域 ($BeCl_2$)

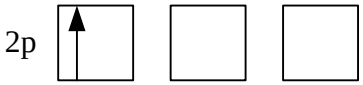




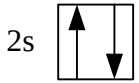
σ sp-p

直線

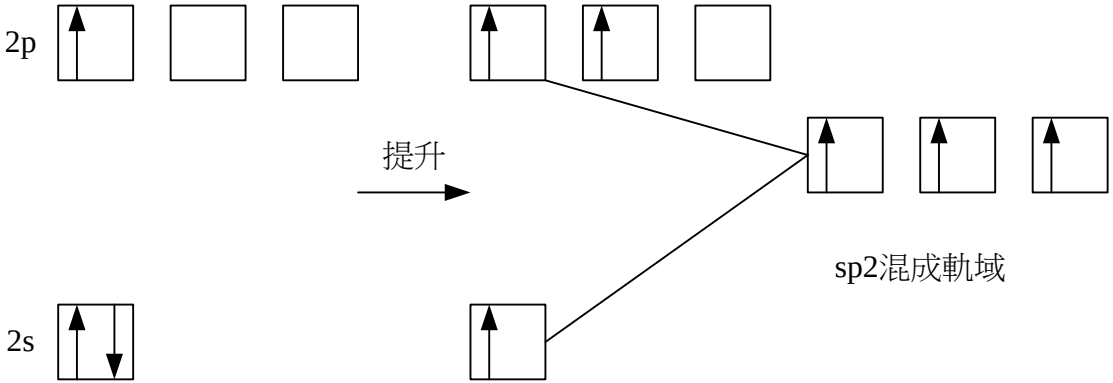
sp^2混成軌域(BCl_3)



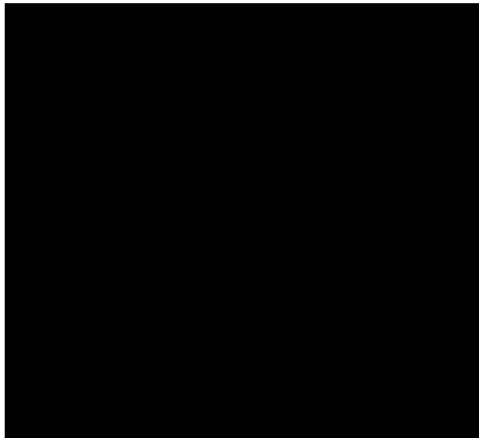
$2s^2 2p_x^{\,1} p_y^{\,0} p_z^{\,0}$



sp^2混成軌域(BCl_3)



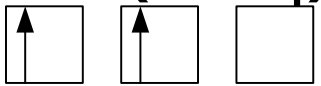
$2s^2p_x^1p_y^0p_z^0$



σ sp2-p

平面三角形

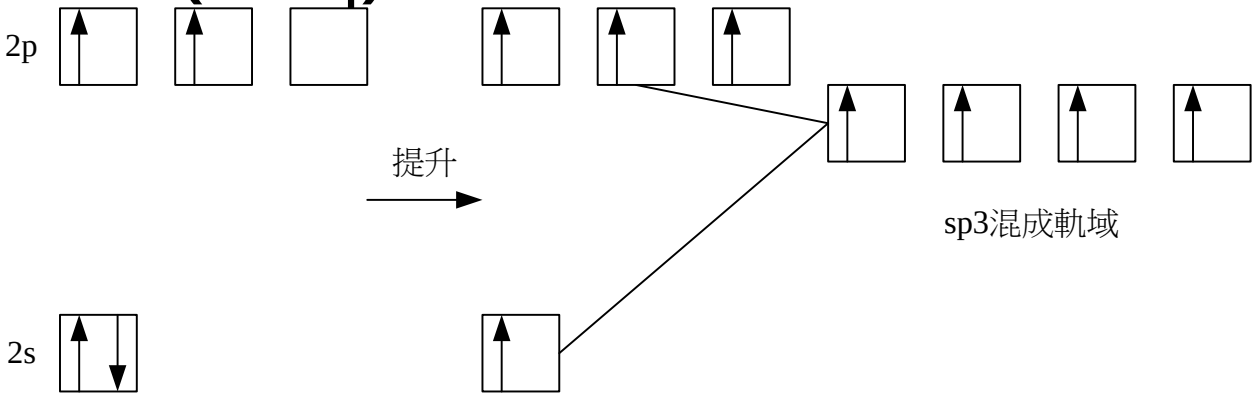
sp^3混成軌域(CH_4)

2p 

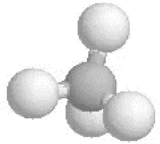
$2s^2 2p_x^1 p_y^1 p_z^0$

2s 

sp^3混成軌域(CH_4)



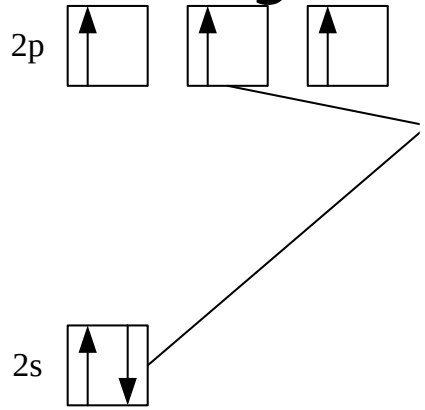
$2s^2 2p_x^1 p_y^1 p_z^0$



σ sp3-s

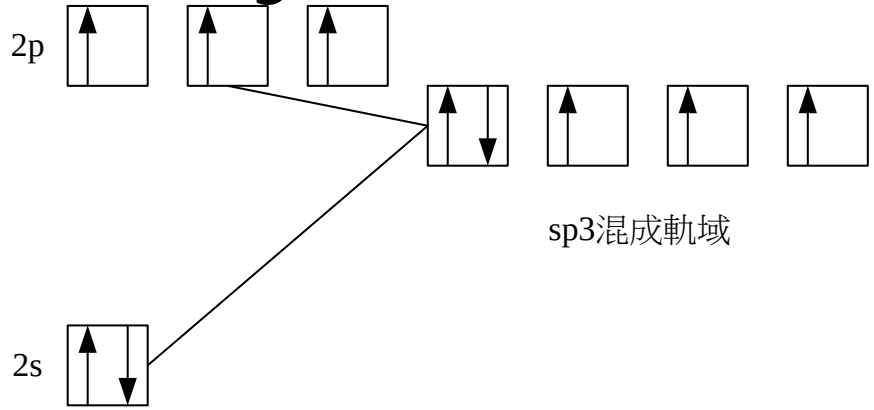
正四面體

sp^3混成軌域(NH_3)



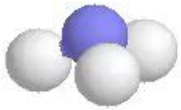
$2s^2 2p_x^1 p_y^1 p_z^1$

sp^3混成軌域(NH_3)



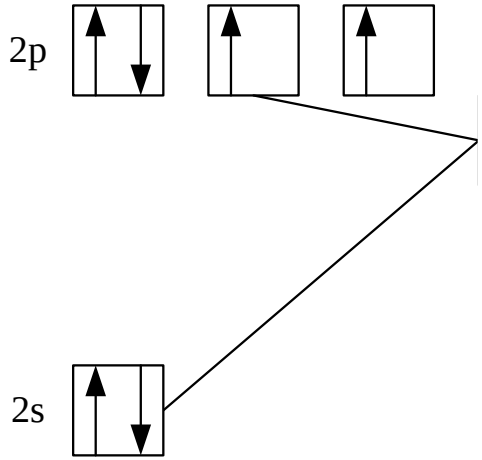
$2s^2 2p_x^1 p_y^1 p_z^1$

σ sp3-s



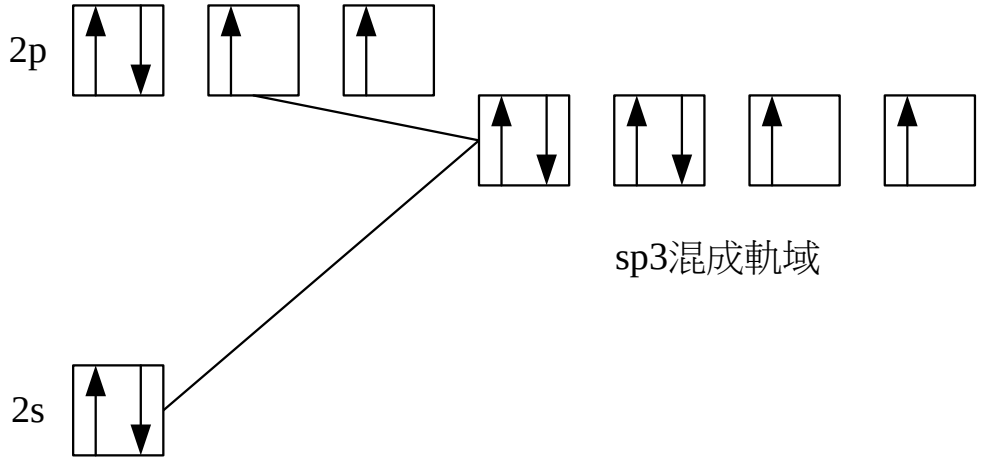
三角錐

sp^3混成軌域(H_2O)



$2s^2 2p_x^2 p_y^1 p_z^1$

sp^3混成軌域(H_2O)



$2s^2 2p_x^2 p_y^1 p_z^1$

[redacted]

σ sp3-s

彎曲型

重點回顧

Sp3 混成軌域變化

- 氨為sp3為混成一個lp為角錐
- 水為sp3為混成兩個lp為彎曲形

混成軌域

- 混成形成數個 能量相等的混成軌域
- 軌混成軌域總數等於混成之軌域總數
- 能量高低：
- s<sp<sp2<sp3< p

sp、sp2，sp3 混成軌域

- sp為直線形
- sp2為平面三角形
- sp3為正四面體