Dynkin diagram

T Group: → 旋转 /

	e	$3C_2$	$4w$	$4w^2$
E_1	1	1	1	1
E_2	1	1	w	w^*
E_3	1	1	w^*	w
T	3	-1	0	0

$12 = 1^2 + 1^2 + 1^2 + 3^2$ ⇑ 特征标表是 Class 的函数

- SO(3) irreducible representation

$$\chi^l(\theta) = \sum \langle l, m | D(\theta) | l, m \rangle$$

$$= \frac{\sin \frac{l+1}{2}(l+\frac{1}{2})\theta}{\sin \frac{\theta}{2}}$$

$\chi^l(0) = 5$ $\chi^l(\pi) = \frac{\sin(\frac{5}{2}\pi)}{\sin(\frac{\pi}{2})} = 1$

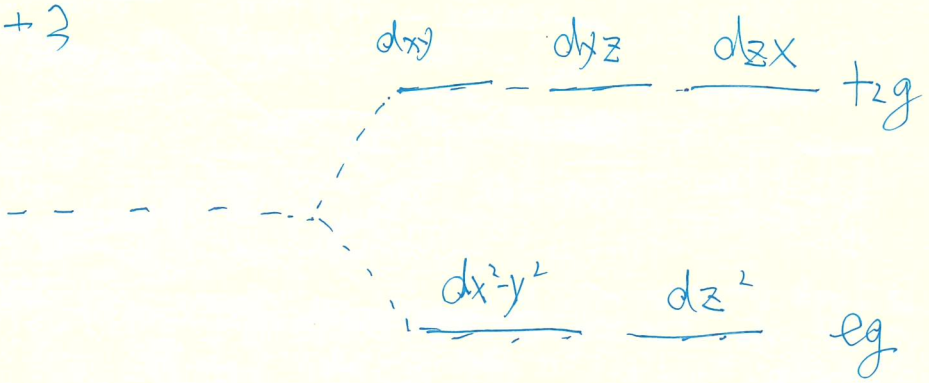
$\chi(\frac{\pi}{3}) = \frac{\sin(\frac{5}{6}\pi)}{\sin(\frac{\pi}{6})} = -1$ $\chi(\frac{2\pi}{3}) = \frac{\sin(\frac{5\pi}{3})}{\sin(\frac{\pi}{3})}$

$\chi(G) = 5 \quad -1 \quad -1 \quad -1$

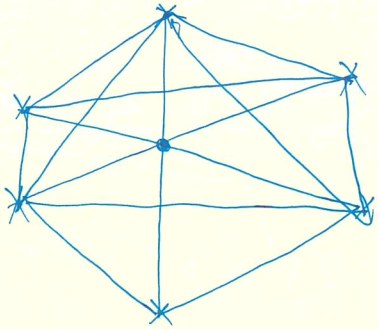
$D^{l=2} = E \oplus E' \oplus T \Rightarrow 5 = 1+1+3$

由于复表示：E和E'仍然是简并的

$5 = 2+3$



O群也可以做：



T群是O群一个正规子群

如果是d轨道，那么则一定会有3+2

Molecular crystal field splitting

刘建