

$C_{\infty v}$	$E$	$2C_{\infty}^{\phi}$	...	$\infty\sigma_v$
$A_1 \equiv \Sigma^+$	1	1	...	1
$A_2 \equiv \Sigma^-$	1	1	...	-1
$E_1 \equiv \Pi$	2	$2\cos\phi$	...	0
$E_2 \equiv \Delta$	2	$2\cos 2\phi$	...	0
$E_3 \equiv \Phi$	2	$2\cos 3\phi$	...	0
...	...	...	...	...



$O_h$	$E$	$8C_3$	$6C_2$	$6C_4$	$3C_2(=C_4^2)$	$i$	$6S_4$	$8S_6$	$3\sigma_h$	$6\sigma_d$
$A_{1g}$	1	1	1	1	1	1	1	1	1	1
$A_{2g}$	1	1	-1	-1	1	1	-1	1	1	-1
$E_g$	2	-1	0	0	2	2	0	-1	2	0
$T_{1g}$	3	0	-1	1	-1	3	1	0	-1	-1
$T_{2g}$	3	0	1	-1	-1	3	-1	0	-1	1
$A_{1u}$	1	1	1	1	1	-1	-1	-1	-1	-1
$A_{2u}$	1	1	-1	-1	1	-1	1	-1	-1	1
$E_u$	2	-1	0	0	2	-2	0	1	-2	0
$T_{1u}$	3	0	-1	1	-1	-3	-1	0	1	1
$T_{2u}$	3	0	1	-1	-1	-3	1	0	1	-1

$T_d$	<b>E</b>	<b>8C<sub>3</sub></b>	<b>3C<sub>2</sub></b>	<b>6S<sub>4</sub></b>	<b>6σ<sub>d</sub></b>
<b>A<sub>1</sub></b>	1	1	1	1	1
<b>A<sub>2</sub></b>	1	1	1	-1	-1
<b>E</b>	2	-1	2	0	0
<b>T<sub>1</sub></b>	3	0	-1	1	-1
<b>T<sub>2</sub></b>	3	0	-1	-1	1

$C_{2v}$	<b>E</b>	<b>C<sub>2</sub></b>	$\sigma_v^{(xz)}$	$\sigma'_v^{(yz)}$
<b>A<sub>1</sub></b>	1	1	1	1
<b>A<sub>2</sub></b>	1	1	-1	-1
<b>B<sub>1</sub></b>	1	-1	1	-1
<b>B<sub>2</sub></b>	1	-1	-1	1

$C_{3v}$	E	$2C_3$	$3\sigma_v$
$A_1$	1	1	1
$A_2$	1	1	-1
<b>E</b>	2	-1	0

$C_{2h}$	E	$C_2$	i	$\sigma_h$
$A_g$	1	1	1	1
$B_g$	1	-1	1	-1
$A_u$	1	1	-1	-1
$B_u$	1	-1	-1	1

$D_{2h}$	E	$C_2(z)$	$C_2(y)$	$C_2(x)$	i	$\sigma(xy)$	$\sigma(xz)$	$\sigma(yz)$
$A_g$	1	1	1	1	1	1	1	1
$B_{1g}$	1	1	-1	-1	1	1	-1	-1
$B_{2g}$	1	-1	1	-1	1	-1	1	-1
$B_{3g}$	1	-1	-1	1	1	-1	-1	1
$A_u$	1	1	1	1	-1	-1	-1	-1
$B_{1u}$	1	1	-1	-1	-1	-1	1	1
$B_{2u}$	1	-1	1	-1	-1	1	-1	1
$B_{3u}$	1	-1	-1	1	-1	1	1	-1



$D_{3h}$	E	$2C_3$	$3C_2$	$\sigma_h$	$2S_3$	$3\sigma_v$
$A_1'$	1	1	1	1	1	1
$A_2'$	1	1	-1	1	1	-1
$E'$	2	-1	0	2	-1	0
$A_1''$	1	1	1	-1	-1	-1
$A_2''$	1	1	-1	-1	-1	1
$E''$	2	-1	0	-2	1	0

$D_{4h}$	E	$2C_4$	$C_2$	$2C_2'$	$2C_2''$	i	$2S_4$	$\sigma_h$	$2\sigma_v$	$2\sigma_d$
$A_{1g}$	1	1	1	1	1	1	1	1	1	1
$A_{2g}$	1	1	1	-1	-1	1	1	1	-1	-1
$B_{1g}$	1	-1	1	1	-1	1	-1	1	1	-1
$B_{2g}$	1	-1	1	-1	1	1	-1	1	-1	1
$E_g$	2	0	-2	0	0	2	0	-2	0	0
$A_{1u}$	1	1	1	1	1	-1	-1	-1	-1	-1
$A_{2u}$	1	1	1	-1	-1	-1	-1	-1	1	1
$B_{1u}$	1	-1	1	1	-1	-1	1	-1	-1	1
$B_{2u}$	1	-1	1	-1	1	-1	1	-1	1	-1
$E_u$	2	0	-2	0	0	-2	0	2	0	0

$D_{6h}$	E	$2C_6$	$2C_3$	$C_2$	$3C_2'$	$3C_2''$	i	$2S_3$	$2S_6$	$\sigma_h$	$3\sigma_d$	$3\sigma_v$
$A_{1g}$	1	1	1	1	1	1	1	1	1	1	1	1
$A_{2g}$	1	1	1	1	-1	-1	1	1	1	1	-1	-1
$B_{1g}$	1	-1	1	-1	1	-1	1	-1	1	-1	1	-1
$B_{2g}$	1	-1	1	-1	-1	1	1	-1	1	-1	-1	1
$E_{1g}$	2	1	-1	-2	0	0	2	1	-1	-2	0	0
$E_{2g}$	2	-1	-1	2	0	0	2	-1	-1	2	0	0
$A_{1u}$	1	1	1	1	1	1	-1	-1	-1	-1	-1	-1
$A_{2u}$	1	1	1	1	-1	-1	-1	-1	-1	-1	1	1
$B_{1u}$	1	-1	1	-1	1	-1	-1	1	-1	1	-1	1
$B_{2u}$	1	-1	1	-1	-1	1	-1	1	-1	1	1	-1
$E_{1u}$	2	1	-1	-2	0	0	-2	-1	1	2	0	0
$E_{2u}$	2	-1	-1	2	0	0	-2	1	1	-2	0	0

$D_{2d}$	E	$2S_4$	$C_2$	$2C_2'$	$2\sigma_d$
$A_1$	1	1	1	1	1
$A_2$	1	1	1	-1	-1
$B_1$	1	-1	1	1	-1
$B_2$	1	-1	1	-1	1
<b>E</b>	2	0	-2	0	0