

Pontcsoportok karaktertáblái

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A karaktertáblákban megtalálható adatok:

①			③		②
	C_{3v}	E	$2C_3$	$3\sigma_v$	(3m)
	A_1	1	1	1	z $x^2 + y^2, z^2$
	A_2	1	1	-1	R_z
④	E	2	-1	0	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$ $\left\{ \begin{array}{l} (xz, yz) \\ (x^2 - y^2, xy) \end{array} \right.$
		⑤		⑥	⑦

1. A csoport Schönfliess-szimbóluma.
2. A csoport „nemzetközi” jelölése.
3. A csoport konjugációs osztályai.
4. Az irreducibilis ábrázolás Mulliken-szimbóluma.
5. Az irreducibilis ábrázolások karakterei.
6. Az adott irreducibilis ábrázoláshoz tartozó poláris (x, y, z) és axiális (R_x, R_y, R_z) vektor komponensek.
7. Az adott irreducibilis ábrázolás szerint transzformálódó bilineáris alakok.

Ciklikus csoportok

$C_1(1)$	E
A	1

C_2	E	C_2	(2)	
A	1	1	z, R_z	x^2, y^2, z^2, xy
B	1	-1	x, y, R_x, R_y	xz, yz

C_3	E	C_3	C_3^2	$\varepsilon = \exp(2\pi i/3)$ (3)	
A	1	1	1	z, R_z	$x^2 + y^2, z^2$
E	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	$\left\{ \begin{array}{l} (xz, yz) \\ (x^2 - y^2, xy) \end{array} \right.$

C_4	E	C_2	C_4	C_4^3	(4)	
A	1	1	1	1	z, R_z	$x^2 + y^2, z^2$
B	1	1	-1	-1		$x^2 - y^2, xy$
E	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} -1 \\ -1 \end{array} \right.$	$\left\{ \begin{array}{l} i \\ -i \end{array} \right.$	$\left\{ \begin{array}{l} -i \\ i \end{array} \right.$	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	(xz, yz)

C_5	E	C_5	C_5^2	C_5^3	C_5^4	$\varepsilon = \exp(2\pi i/5)$ (5)	
A	1	1	1	1	1	z, R_z	$x^2 + y^2, z^2$
E'	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon^4 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon^3 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^3 \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^4 \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	(xz, yz)
E''	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon^3 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^4 \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^4 \\ \varepsilon^4 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^3 \\ \varepsilon^2 \end{array} \right.$		$(x^2 - y^2, xy)$

C_6	E	C_6	C_6^2	C_6^3	C_6^4	C_6^5	$\varepsilon = \exp(2\pi i/6)$ (6)	
A	1	1	1	1	1	1	z, R_z	$x^2 + y^2, z^2$
B	1	-1	1	-1	1	-1		
E'	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon^5 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon^4 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^3 \\ \varepsilon^3 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^4 \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^5 \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	(xz, yz)
E''	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon^4 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^4 \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon^4 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^4 \\ \varepsilon^2 \end{array} \right.$		$(x^2 - y^2, xy)$

C_{nv} csoportok

C_{2v}	E	C_2	σ_v	σ_v'	($2mm$)	
A_1	1	1	1	1	z	x^2, y^2, z^2
A_2	1	1	-1	-1	R_z	xy
B_1	1	-1	1	-1	x, R_y	xz
B_2	1	-1	-1	1	y, R_x	yz

C_{3v}	E	$2C_3$	$3\sigma_v$	($3m$)		
A_1	1	1	1	z	$x^2 + y^2, z^2$	
A_2	1	1	-1	R_z		
E	2	-1	0	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	$\left\{ \begin{array}{l} (xz, yz) \\ (x^2 - y^2, xy) \end{array} \right.$	

C_{4v}	E	$2C_4$	C_2	$2\sigma_v$	$2\sigma_d$	($4mm$)	
A_1	1	1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	1	-1	-1	R_z	
B_1	1	-1	1	1	-1		$x^2 - y^2$
B_2	1	-1	1	-1	1		xy
E	2	0	-2	0	0	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	(xz, yz)

C_{5v}	E	$2C_5$	$2C_5^2$	$5\sigma_v$	$\alpha = 2\pi/5$ ($5m$)	
A_1	1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	1	-1	R_z	
E_1	2	$2 \cos \alpha$	$2 \cos 2\alpha$	0	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	(xz, yz)
E_2	2	$2 \cos 2\alpha$	$2 \cos 4\alpha$	0		$(x^2 - y^2, xy)$

C_{6v}	E	$2C_6$	$2C_3$	C_2	$3\sigma_d$	$3\sigma_v$	($6mm$)	
A_1	1	1	1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	1	1	-1	-1	R_z	
B_1	1	-1	1	-1	-1	1		
B_2	1	-1	1	-1	1	-1		
E_1	2	1	-1	-2	0	0	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	(xz, yz)
E_2	2	-1	-1	2	0	0		$(x^2 - y^2, xy)$

C_{nh} csoportok

C_{1h}	E	σ_h	(m)	
A'	1	1	x, y, R_z	x^2, y^2, z^2, xy
A''	1	-1	z, R_x, R_y	xz, yz

C_{2h}	E	C_2	σ_h	i	$(2/m)$	
A_g	1	1	1	1	R_z	x^2, y^2, z^2, xy
B_g	1	-1	-1	1	R_x, R_y	xz, yz
A_u	1	1	-1	-1	z	
B_u	1	-1	1	-1	x, y	

$C_{3h} = C_3 \times \sigma_h$	E	C_3	C_3^2	σ_h	S_3	S_3^5	$\varepsilon = \exp(2\pi i/3) \quad (\bar{6})$	
A'	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
A''	1	1	1	-1	-1	-1	z	
E'		$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} (x, y) \\ (x^2 - y^2, xy) \end{array} \right.$
E''		$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon \\ \varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} \varepsilon^2 \\ \varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} -1 \\ -1 \end{array} \right.$	$\left\{ \begin{array}{l} -\varepsilon \\ -\varepsilon^2 \end{array} \right.$	$\left\{ \begin{array}{l} -\varepsilon \\ -\varepsilon \end{array} \right.$	$\left\{ \begin{array}{l} (R_x, R_y) \\ (xz, yz) \end{array} \right.$

$C_{4h} = C_4 \times i$	E	C_4	C_2	C_4^3	I	S_4^3	σ_h	S_4	$(4/m)$	
A_g	1	1	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
B_g	1	-1	1	-1	1	-1	1	-1		$x^2 - y^2, xy$
E_g		$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} i \\ -i \end{array} \right.$	$\left\{ \begin{array}{l} -1 \\ -1 \end{array} \right.$	$\left\{ \begin{array}{l} -i \\ i \end{array} \right.$	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} i \\ -i \end{array} \right.$	$\left\{ \begin{array}{l} -1 \\ -1 \end{array} \right.$	$\left\{ \begin{array}{l} i \\ i \end{array} \right.$	$\left\{ \begin{array}{l} (R_x, R_y) \\ (xz, yz) \end{array} \right.$
A_u	1	1	1	1	-1	-1	-1	-1	z	
B_u	1	-1	1	-1	-1	1	-1	1		
E_u		$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} i \\ -i \end{array} \right.$	$\left\{ \begin{array}{l} -1 \\ -1 \end{array} \right.$	$\left\{ \begin{array}{l} -i \\ i \end{array} \right.$	$\left\{ \begin{array}{l} -1 \\ -1 \end{array} \right.$	$\left\{ \begin{array}{l} -i \\ i \end{array} \right.$	$\left\{ \begin{array}{l} 1 \\ 1 \end{array} \right.$	$\left\{ \begin{array}{l} i \\ -i \end{array} \right.$	$\left\{ \begin{array}{l} (x, y) \end{array} \right.$

$$C_{5h} = C_5 \times \sigma_h \quad (\bar{10})$$

$$C_{6h} = C_6 \times i \quad (6/m)$$

D_n csoportok

D₂	E	C₂	C₂(y)	C₂(x)	(222)	
A ₁	1	1	1	1	z, R _z y, R _y x, R _x	x ² , y ² , z ²
A ₂	1	1	-1	-1		xy
B ₁	1	-1	1	-1		xz
B ₂	1	-1	-1	1		yz

D₃	E	2C₃	3C₂'	(32)		
A ₁	1	1	1	z, R _z { (x, y) (R _x , R _y)	x ² + y ² , z ²	
A ₂	1	1	-1		(xz, yz)	
E	2	-1	0		(x ² - y ² , xy)	

D₄	E	2C₄	C₂	2C₂'	2C₂''	(422)	
A ₁	1	1	1	1	1	z, R _z { (x, y) (R _x , R _y)	x ² + y ² , z ²
A ₂	1	1	1	-1	-1		x ² - y ²
B ₁	1	-1	1	1	-1		xy
B ₂	1	-1	1	-1	1		(xz, yz)
E	2	0	-2	0	0		

D₅	E	2C₅	2C₅²	5C₂'	α = 2π/5 (52)		
A ₁	1	1	1	1	z, R _z { (x, y) (R _x , R _y)	x ² + y ² , z ²	
A ₂	1	1	1	-1		(xz, yz)	
E ₁	2	2 cos α	2 cos 2α	0		(x ² - y ² , xy)	
E ₂	2	2 cos 2α	2 cos 4α	0			

D₆	E	2C₆	2C₃	C₂	3C₂'	3C₂''	(622)	
A ₁	1	1	1	1	1	1	z, R _z { (x, y) (R _x , R _y)	x ² + y ² , z ²
A ₂	1	1	1	1	-1	-1		(xz, yz)
B ₁	1	-1	1	-1	-1	1		(x ² - y ² , xy)
B ₂	1	-1	1	-1	1	-1		
E ₁	2	1	-1	-2	0	0		
E ₂	2	-1	-1	2	0	0		

D_{nd} csoportok

D_{2d}	E	C_2	$2S_4$	$2C_2'$	$2\sigma_d$	$(\bar{4}2m)$	
A_1	1	1	1	1	1	R_z	x^2, y^2, z^2, xy
A_2	1	1	1	-1	-1	z	
B_1	1	1	-1	1	-1	R_x, R_y	xz, yz
B_2	1	1	-1	-1	1	x, y	
E	2	-2	0	0	0	$\left\{ \begin{array}{l} (x, y) \\ (R_x, R_y) \end{array} \right.$	

$D_{3d} = D_3 \times i$	E	$2C_3$	$3C_2'$	i	$2S_6$	$3\sigma_d$	$(\bar{3}m)$	
A_{1g}	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	-1	1	1	-1	R_z	
E_g	2	-1	0	2	-1	0	(R_x, R_y)	$\left\{ \begin{array}{l} (x^2 - y^2, xy) \\ (xz, yz) \end{array} \right.$
A_{1u}	1	1	1	-1	-1	-1		
A_{2u}	1	1	-1	-1	-1	1	z	
E_u	2	-1	0	-2	1	0	(x, y)	

D_{nh} csoportok

$D_{2h} = D_2 \times i$	E	C_2	$C_2(y)$	$C_2(x)$	i	$\sigma(xy)$	$\sigma(xz)$	$\sigma(yz)$	(mmm)	
A_g	1	1	1	1	1	1	1	1		x^2, y^2, z^2
B_{1g}	1	1	-1	-1	1	1	-1	-1	R_z	xy
B_{2g}	1	-1	1	-1	1	-1	1	-1	R_y	xz
B_{3g}	1	-1	-1	1	1	-1	-1	1	R_x	yz
A_u	1	1	1	1	-1	-1	-1	-1		
B_{1u}	1	1	-1	-1	-1	-1	1	1	z	
B_{2u}	1	-1	1	-1	-1	1	-1	1	y	
B_{3u}	1	-1	-1	1	-1	1	1	-1	x	

$D_{3h} = D_3 \times \sigma_h$	E	$2C_3$	$3C_2$	σ_h	$2S_3$	$3\sigma_v$	$(\bar{6}m2)$			
A'_1	1	1	1	1	1	1				$x^2 + y^2, z^2$
A'_2	1	1	-1	1	1	-1	R_z			xy
E'	2	-1	0	2	-1	0	(x,y)			$(x^2 - y^2, xy)$
A''_1	1	1	1	-1	-1	-1				yz
A''_2	1	1	-1	-1	-1	1	z			
E''	2	-1	0	-2	1	0	(R_x, R_y)			(xz, yz)

$D_{4h} = D_4 \times i$	E	$2C_4$	C_2	$2C_2'$	$2C_2''$	i	$2S_4$	σ_h	$2\sigma_v$	$2\sigma_d$	$(4/mmm)$	
A_{1g}	1	1	1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	1	-1	-1	1	1	1	-1	-1	R_z	
B_{1g}	1	-1	1	1	-1	1	-1	1	1	-1		$x^2 - y^2$
B_{2g}	1	-1	1	-1	1	1	-1	1	-1	1		xy
E_g	2	0	-2	0	0	2	0	-2	0	0	(R_x, R_y)	(xz, yz)
A_{1u}	1	1	1	1	1	-1	-1	-1	-1	-1		
A_{2u}	1	1	1	-1	-1	-1	-1	-1	1	1	z	
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	(x,y)	

$$D_{5h} = D_5 \times \sigma_h \quad (\bar{10}m2)$$

$$D_{6h} = D_6 \times i \quad (6/mmm)$$

S_n csoportok

S₂	E	i	(1)	
<i>A_g</i>	1	1	<i>R_x, R_y, R_z</i>	$\begin{cases} x^2, y^2, z^2 \\ xy, xz, yz \end{cases}$
<i>A_u</i>	1	-1	<i>x, y, z</i>	

S₄	E	S₄	C₂	S₄³	(4)	
<i>A</i>	1	1	1	1	<i>z, R_z</i>	<i>x² + y², z²</i>
<i>B</i>	1	-1	1	-1		<i>x² - y², xy</i>
<i>E</i>	$\begin{cases} 1 & i & -1 & -i \\ 1 & -1 & -i & i \end{cases}$				$\begin{cases} (x, y) \\ (R_x, R_y) \end{cases}$	<i>(xz, yz)</i>

S₆ = C₃ × i	E	C₃	C₃²	i	S₆⁵	S₆	ε = exp(2πi/3) (3)	
<i>A_g</i>	1	1	1	1	1	1	<i>R_z</i>	<i>x² + y², z²</i>
<i>E_g</i>	$\begin{cases} 1 & \varepsilon & \varepsilon^2 & 1 & \varepsilon & \varepsilon^2 \\ 1 & \varepsilon^2 & \varepsilon & 1 & \varepsilon^2 & \varepsilon \end{cases}$						<i>(R_x, R_y)</i>	$\begin{cases} (x^2 - y^2, xy) \\ (xz, yz) \end{cases}$
<i>A_u</i>	1	1	1	-1	-1	-1	<i>z</i>	
<i>E_u</i>	$\begin{cases} 1 & \varepsilon & \varepsilon^2 & -1 & -\varepsilon & -\varepsilon^2 \\ 1 & \varepsilon^2 & \varepsilon & -1 & -\varepsilon^2 & -\varepsilon \end{cases}$						<i>(x, y)</i>	

Köbös csoportok

T	E	$4C_3$	$4C_3^2$	$3C_2$	$\varepsilon = \exp(2\pi i/3)$ (23)	
A	1	1	1	1	$x^2 + y^2 + z^2$	
E	$\begin{cases} 1 & \varepsilon & \varepsilon^2 & 1 \\ 1 & \varepsilon^2 & \varepsilon & 1 \end{cases}$				$(2z^2 - x^2 - y^2, x^2 - y^2)$	
T	3	0	0	-1	$\begin{cases} (x, y, z) \\ (R_x, R_y, R_z) \end{cases}$	

$T_h = T \times i$	E	$4C_3$	$4C_3^2$	$3C_2$	i	$4S_6^5$	$4S_6$	$3\sigma_h$	$\varepsilon = \exp(2\pi i/3)$ (23)	
A_g	1	1	1	1	1	1	1	1	$x^2 + y^2 + z^2$	
E_g	$\begin{cases} 1 & \varepsilon & \varepsilon^2 & 1 & 1 & \varepsilon & \varepsilon^2 & 1 \\ 1 & \varepsilon^2 & \varepsilon & 1 & 1 & \varepsilon^2 & \varepsilon & 1 \end{cases}$								$(2z^2 - x^2 - y^2, x^2 - y^2)$	
T_g	3	0	0	-1	3	0	0	-1	(R_x, R_y, R_z)	(xy, xz, yz)
A_u	1	1	1	1	-1	-1	-1	-1		
E_u	$\begin{cases} 1 & \varepsilon & \varepsilon^2 & 1 & -1 & -\varepsilon & -\varepsilon^2 & -1 \\ 1 & \varepsilon^2 & \varepsilon & 1 & -1 & -\varepsilon^2 & -\varepsilon & -1 \end{cases}$									
T_u	3	0	0	-1	-3	0	0	1	(x, y, z)	

T_d	E	$8C_3$	$3C_2$	$6\sigma_d$	$6S_4$	$(\bar{43m})$	
A_1	1	1	1	1	1	$x^2 + y^2 + z^2$	
A_2	1	1	1	-1	-1		
E	2	-1	2	0	0	$(2z^2 - x^2 - y^2, x^2 - y^2)$	
T_1	3	0	-1	-1	1	(R_x, R_y, R_z)	
T_2	3	0	-1	1	-1	(x, y, z)	(xy, xz, yz)

O	E	$8C_3$	$3C_2 (= C_4^2)$	$6C_2$	$6C_4$	(432)	
A_1	1	1	1	1	1	$\left\{ \begin{array}{l} (x, y, z) \\ (R_x, R_y, R_z) \end{array} \right.$	$x^2 + y^2 + z^2$
A_2	1	1	1	-1	-1		$(2z^2 - x^2 - y^2, x^2 - y^2)$
E	2	-1	2	0	0		
T_1	3	0	-1	-1	1		
T_2	3	0	-1	1	-1		(xy, xz, yz)

$O_h =$ $O \times i$	E	$8C_3$	$3C_2 (= C_4^2)$	$6C_2$	$6C_4$	i	$8S_6$	$3\sigma_h$	$6\sigma_d$	$6S_4$	(m3m)	
A_{1g}	1	1	1	1	1	1	1	1	1	1	(R_x, R_y, R_z)	$x^2 + y^2 + z^2$
A_{2g}	1	1	1	-1	-1	1	1	1	-1	-1		$(2z^2 - x^2 - y^2, x^2 - y^2)$
E_g	2	-1	2	0	0	2	-1	2	0	0		
T_{1g}	3	0	-1	-1	1	3	0	-1	-1	1		(xy, xz, yz)
T_{2g}	3	0	-1	1	-1	3	0	-1	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	(x, y, z)	
E_u	2	-1	2	0	0	-2	1	-2	0	0		
T_{1u}	3	0	-1	-1	1	-3	0	1	1	-1		
T_{2u}	3	0	-1	1	-1	-3	0	1	-1	1		

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I	E	$12C_5$	$12C_5^2$	$20C_3$	$15C_2$	$\alpha = \frac{1}{2}(1+\sqrt{5})$	$\beta = \frac{1}{2}(1-\sqrt{5})$
A	1	1	1	1	1	$\left\{ \begin{array}{l} (x, y, z) \\ (R_x, R_y, R_z) \end{array} \right.$	$x^2 + y^2 + z^2$
T_1	3	α	β	0	-1		
T_2	3	β	α	0	-1		
G	4	-1	-1	1	0		
H	5	0	0	-1	1		
							$\left\{ \begin{array}{l} (2z^2 - x^2 - y^2, x^2 - y^2, \\ xy, xz, yz) \end{array} \right.$

$I_h =$ $I \times i$	E	$12C_5$	$12C_5^2$	$20C_3$	$15C_2$	i	$12S_{10}$	$12S_{10}^3$	$20S_6$	$15\sigma_d$	$\alpha = \frac{1}{2}(1+\sqrt{5})$	$\beta = \frac{1}{2}(1-\sqrt{5})$
A_g	1	1	1	1	1	1	1	1	1	1	(R_x, R_y, R_z)	$x^2 + y^2 + z^2$
T_{1g}	3	α	β	0	-1	3	α	β	0	-1		
T_{2g}	3	β	α	0	-1	3	β	α	0	-1		
G_g	4	-1	-1	1	0	4	-1	-1	1	0		
H_g	5	0	0	-1	1	5	0	0	-1	1		
A_u	1	1	1	1	1	-1	-1	-1	-1	-1	(x, y, z)	$\left\{ \begin{array}{l} (2z^2 - x^2 - y^2, x^2 - y^2, \\ xy, xz, yz) \end{array} \right.$
T_{1u}	3	α	β	0	-1	-3	$-\alpha$	$-\beta$	0	1		
T_{2u}	3	β	α	0	-1	-3	$-\beta$	$-\alpha$	0	1		
G_u	4	-1	-1	1	0	-4	1	1	-1	0		
H_u	5	0	0	-1	1	-5	0	0	1	-1		