Point Group Tables: T_d

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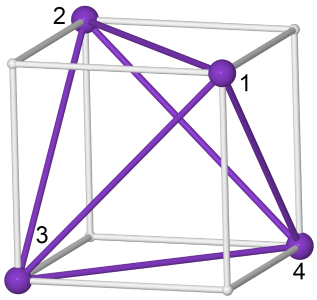

Figure 1: Tetrahedron

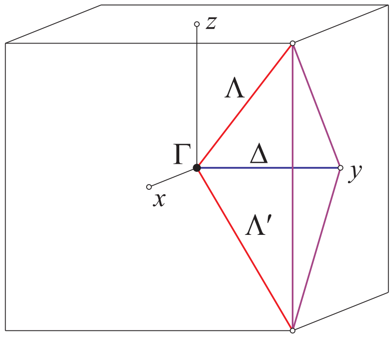

Figure 2: Orbits

Table 1: Representations, decomposition of the rotation group representations, eigenfunction symmetry

	e	$8c_3$	$3c_2$	$6c_{4i}$	$6\sigma_v$	0	1	2	3	4	5	6	0_g	1_u	2_g	3_u
A_1	1	1	1	1	1	1	.	.	1	1	.	1	S			F_{xyz}
A_2	1	1	1	-1	-1	.	.	.	.	.	.	1				
E	2	-1	2	0	0	.	.	1	.	1	1	1			$D_{z^2}, D_{x^2-y^2}$	
F_1	3	0	-1	1	-1	.	.	.	1	1	1	1				$F_{xy^2}, F_{yz^2}, F_{zx^2}$
F_2	3	0	-1	-1	1	.	1	1	1	1	2	2		P_x, P_y, P_z	D_{yz}, D_{zx}, D_{xy}	$F_{x^3}, F_{y^3}, F_{z^3}$

Table 2: Orbits, decomposition of regular representation, stabilizator

	e	$8c_3$	$3c_2$	$6c_{4i}$	$6\sigma_v$		
Λ, Λ'	4	1	0	0	2	$A_1 + F_2$	C_{3v}
Δ	6	0	2	0	2	$A_1 + E + F_2$	C_{2v}
$\Lambda\Lambda', \Lambda\Delta, \Lambda'\Delta$	12	0	0	0	2	$A_1 + E + F_1 + 2F_2$	C_{1v}

Table 3: Decomposition over irreducible representations of stabilizators

		e	c_3	c_2	σ_v	σ'_v		A_1	A_2	E	F_1	F_2
C_{3v}	A_1	1	1		1		$S; P_z$	1	.	.	.	1
	A_2	1	1		-1		D_{xy}	.	1	.	1	.
	E	2	-1		0		P_x, P_y	.	.	1	1	1
C_{2v}	A_1	1		1	1	1	$S; P_z$	1	.	1	.	1
	A_2	1		1	-1	-1	D_{xy}	.	1	1	1	.
	B_1	1		-1	1	-1	P_y	.	.	.	1	1
	B_2	1		-1	-1	1	P_x	.	.	.	1	1
C_{1v}	A'	1			1		$S; P_y, P_z$	1	.	1	1	2
	A''	1			-1		P_x	.	1	1	2	1

Table 4: Multiplication table

	A_2	E	F_1	F_2
A_2	A_1	E	F_2	F_1
E		$A_1 + A_2 + E$	$F_1 + F_2$	$F_1 + F_2$
F_1			$A_1 + E + F_1 + F_2$	$A_2 + E + F_1 + F_2$
F_2				$A_1 + E + F_1 + F_2$