CHARACTER TABLES FOR HIGHER POINT GROUPS

Character table for T_d point group

	E	$8C_3$	$3C_2$	$6S_4$	$6\sigma_d$	Linear Functions, Rotations	Quadratic
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)

Character table for O_h point group

	E	$8C_3$	$6C_2$	$6C_4$	$3C_2=(C_4)^2$	i	$6S_4$	$8S_6$	$3\sigma_h$	$6\sigma_d$	Linear Functions, Rotations	Quadratic
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		
E_g	2	-1	0	0	2	2	0	-1	2	0		$(2z^2-x^2-y^2, x^2-y^2)$
T_{1g}	3	0	-1	1	-1	3	1	0	-1	-1	(R_x, R_y, R_z)	
T_{2g}	3	0	1	-1	-1	3	-1	0	-1	1		(xz, yz, xy)
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	(x, y, z)	
T_{2u}	3	0	1	-1	-1	-3	1	0	1	-1		

Character table for I_h point group

	E	$12C_5$	$12(C_5)^2$	$20C_3$	$15C_2$	i	$12S_{10}$	$12(S_{10})^3$	$20S_6$	15σ	Linear Functions, Rotations	Quadratic
A_g	1	1	1	1	1	1	1	1	1	1		$x^2+y^2+z^2$
T_{1g}	3	-2cos(4&pi/5)	-2cos(2&pi/5)	0	-1	3	-2cos(2&pi/5)	-2cos(4&pi/5)	0	-1	(R_x, R_y, R_z)	
T_{2g}	3	-2cos(2&pi/5)	-2cos(4&pi/5)	0	-1	3	-2cos(4&pi/5)	-2cos(2&pi/5)	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		$[2z^2-x^2-y^2, x^2-y^2, xy, xz, yz]$
A_u	1	1	1	1	1	-1	-1	-1	-1	-1		
T_{1u}	3	-2cos(4&pi/5)	-2cos(2&pi/5)	0	-1	-3	2cos(2&pi/5)	2cos(4&pi/5)	0	1	(x, y, z)	
T_{2u}	3	-2cos(2&pi/5)	-2cos(4&pi/5)	0	-1	-3	2cos(4&pi/5)	2cos(2&pi/5)	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		