

1 NANO106 Handout 4 - Point Group Summary and Determination

Crystal System	Laue Class	Hermann-Mauguin		Schoenflies
		Full	Short	
Triclinic	$\bar{1}$	1	1	C_1
		$\bar{1}$	$\bar{1}$	$C_i = S_2$
Monoclinic	$\frac{2}{m}$	2	2	C_2
		m	m	$C_s = C_{1h}$
		$\frac{2}{m}$	$\frac{2}{m}$	C_{2h}
Orthorhombic	mmm	222	222	D_2
		$mm2$	$mm2$	C_{2v}
		$\frac{2}{m} \frac{2}{m} \frac{2}{m}$	mmm	D_{2h}
Tetragonal	$\frac{4}{m}$	4	4	C_4
		$\bar{4}$	$\bar{4}$	S_4
		$\frac{4}{m}$	$\frac{4}{m}$	C_{4h}
	$\frac{4}{m} mm$	422	422	D_4
		$4mm$	$4mm$	C_{4v}
		$\bar{4}2m$	$\bar{4}2m$	D_{2d}
		$\frac{4}{m} \frac{2}{m} \frac{2}{m}$	$\frac{4}{m} mm$	D_{4h}
Trigonal	$\bar{3}$	3	3	C_3
		$\bar{3}$	$\bar{3}$	C_{3i}
	$\bar{3}m$	32	32	D_3
		$3m$	$3m$	C_{3v}
Hexagonal	$\frac{6}{m}$	$\bar{3}m$	$\bar{3}m$	D_{3d}
		6	6	C_6
		$\bar{6}$	$\bar{6}$	C_{3h}
	$\frac{6}{m} mm$	6	6	C_{6h}
		$\frac{6}{m}$	$\frac{6}{m}$	
		622	622	D_6
		$6mm$	$6mm$	C_{6v}
Cubic	$m\bar{3}$	$\bar{6}m2$	$\bar{6}m2$	D_{3h}
		$\frac{6}{m} \frac{2}{m} \frac{2}{m}$	$\frac{6}{m} mm$	D_{6h}
		$\frac{6}{m} \frac{2}{m} \frac{2}{m}$	$\frac{6}{m} mm$	
	$m\bar{3}m$	23	23	T
		$\frac{2}{m} \bar{3}$	$m\bar{3}$	T_h
		432	432	O
	$m\bar{3}m$	$\bar{4}3m$	$\bar{4}3m$	T_d
		$\frac{4}{m} \bar{3} \frac{2}{m}$	$m\bar{3}m$	O_h

