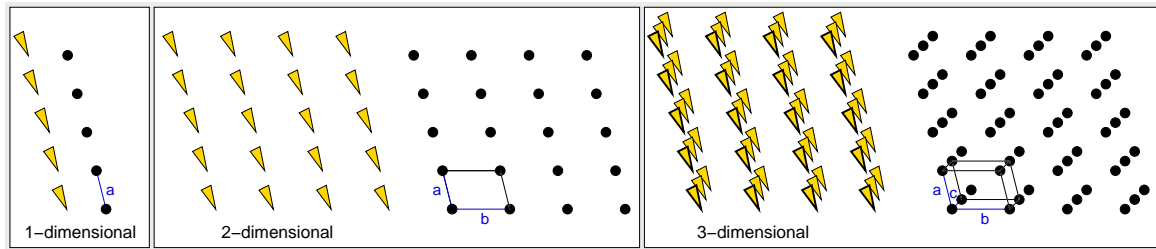
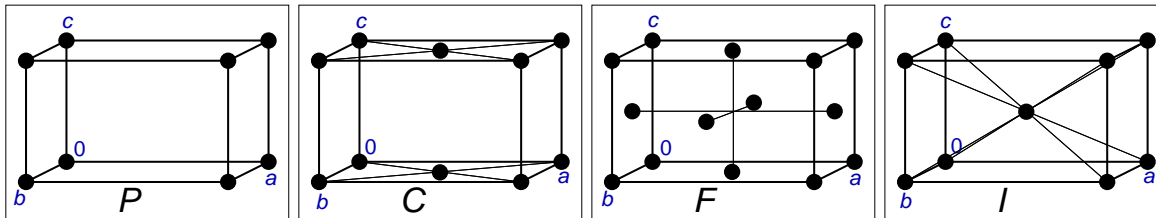


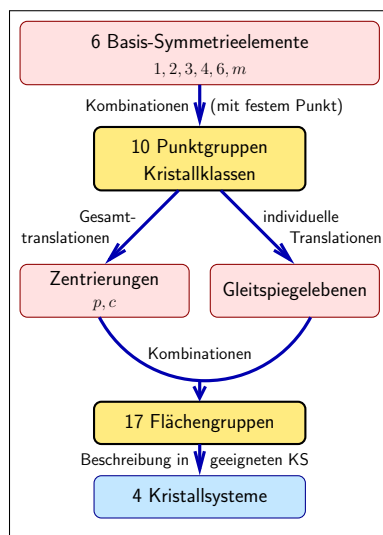
1. Kristallographie



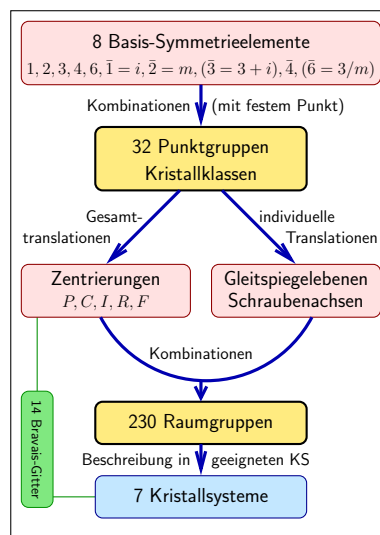
Translation als Symmetrieoperation; Elementarzellen; Struktur = Gitter + Motiv



zentrierte Gitter (3D, ohne R)



2-dim. Translation (Flächengruppen)



3-dim. Translation (Raumgruppen)

rot: Symmetrieelemente;
gelb: Punkt/Raumgruppen;
blau: symmetrieadaptierte Koordinatensysteme
grün: Kristallsysteme nach Zentrierungstyp

2- und 3-dimensionale Strukturen und ihre Symmetrien und Beschreibungen

Nr.	Hermann-Mauguin		Schönflies	Koordinatensystem	Nr.	Hermann-Mauguin		Schönflies	Koordinatensystem
	Kurzsymbol	Langsymbol				Kurzsymbol	Langsymbol		
1	1	1	C_1	triklin	16	3	3	C_3	trigonal
2	$\bar{1}$	$\bar{1}$	C_i	($a \neq b \neq c; \alpha \neq \beta \neq \gamma$)	17	$\bar{3}$	$\bar{3}$	S_6	(hexagonale A.)
3	m	$1m1$	C_s	monoklin	18	$3m1$	$3m1$	C_{3v}	($a = b \neq c$)
4	2	121	C_2	($a \neq b \neq c,$	19	321	321	D_3	$\alpha = \beta = 90^\circ;$
5	$\frac{2}{m}$	$1\frac{2}{m}1$	C_{2h}	$\alpha = \gamma = 90^\circ; \beta \neq 90^\circ$)	20	$\bar{3}m1$	$\bar{3}\frac{2}{m}1$	D_{3d}	$\gamma = 120^\circ$)
6	$mm2$	$mm2$	C_{2v}	orthorhombisch	21	6	6	C_6	hexagonal
7	222	222	D_2	($a \neq b \neq c,$	22	$\bar{6}$	$\bar{6}$	C_{3h}	($a = b \neq c$)
8	mmm	$\frac{2}{m}\frac{2}{m}\frac{2}{m}$	D_{2h}	$\alpha = \beta = \gamma = 90^\circ$)	23	$\frac{6}{m}$	$\frac{6}{m}$	C_{6h}	$\alpha = \beta = 90^\circ;$
9	4	4	C_4	tetragonal	24	$\bar{6}m2$	$\bar{6}m2$	D_{3h}	$\gamma = 120^\circ$)
10	$\frac{4}{4}$	$\frac{4}{4}$	S_4	($a = b \neq c$	25	$6mm$	$6mm$	C_{6v}	
11	$\frac{4}{m}$	$\frac{4}{m}$	C_{4h}	$\alpha = \beta = \gamma = 90^\circ$)	26	622	622	D_6	
12	$4mm$	$4mm$	C_{4v}		27	$\frac{6}{m}mm$	$\frac{6}{m}\frac{2}{m}\frac{2}{m}$	D_{6h}	
13	$\bar{4}2m$	$\bar{4}2m$	D_{2d}		28	23	23	T	kubisch
14	422	422	D_4		29	$m\bar{3}$	$\frac{2}{m}\bar{3}$	T_h	($a = b = c$)
15	$\frac{4}{m}mm$	$\frac{4}{m}\frac{2}{m}\frac{2}{m}$	D_{4h}		30	$\bar{4}3m$	$\bar{4}3m$	T_d	$\alpha = \beta = \gamma = 90^\circ$)
					31	432	432	O	
					32	$m\bar{3}m$	$\frac{4}{m}\bar{3}\frac{2}{m}$	O_h	

Tabelle der 32 3-dimensionalen Punktgruppen/Kristallklassen (inkl. Kristallsysteme)