

1.1. INTRODUCTION TO THE PROPERTIES OF TENSORS

(ii) Groups $\bar{3}m$, 32 , $3m$

<i>kl</i>	11	22	33	23	31	12	32	13	21
<i>ij</i>									
11	1111	1122	1133	1123			1132		
22		1111	1133	-1123			-1132		
33			3333						
23				2323			2332		
31					3131	1132		2332	1132
12						1212		1123	1221
32							3131		
13								2323	1123
21									1212

with

$$t_{1111} - t_{1122} = t_{1212} + t_{1221}.$$

There are 11 independent components.

1.1.4.9.9.5. Tetragonal system

(i) Groups $4/m$, 4 , $\bar{4}$

<i>kl</i>	11	22	33	23	31	12	32	13	21
<i>ij</i>									
11	1111	1122	1133			1112			-2212
22		1111	1133			2212			-1112
33			3333			3312			-3312
23				2323	2331		2332		
31					3131			2332	
12						1212			1221
32							3131	-2331	
13								2323	
21									1212

There are 13 independent components.

(ii) Groups $4/m\bar{m}2$, 422 , $4mm$, $\bar{4}2m$

<i>kl</i>	11	22	33	23	31	12	32	13	21
<i>ij</i>									
11	1111	1122	1133						
22		1111	1133						
33			3333						
23				2323			2332		
31					3131			3113	
12						1212			1221
32							3131		
13								2323	
21									1212

There are 9 independent components.

1.1.4.9.9.6. Hexagonal and cylindrical systems

(i) Groups $6/m$, $\bar{6}$, 6 ; $(A_\infty/M)C$, A_∞

<i>kl</i>	11	22	33	23	31	12	32	13	21
<i>ij</i>									
11	1111	1122	1133			1112			1121
22		1111	1133			-1121			-1112
33			3333			3312			-3312
23				2323	2331		2332		
31					3131		3132	2332	
12						1212			1221
32							3131	-2331	
13								2323	
21									1212

with

$$t_{1111} - t_{1122} = t_{1212} + t_{1221}.$$

There are 12 independent components.

(ii) Groups $6/m\bar{m}2$, 622 , $6mm$, $\bar{6}2m$; $(A_\infty/M)\infty(A_2/M)C$, $A_\infty\infty A_2$

<i>kl</i>	11	22	33	23	31	12	32	13	21
<i>ij</i>									
11	1111	1122	1133						
22		1111	1133						
33			3333						
23				2323			2332		
31					3131			3113	
12						1212			1221
32							3131		
13								2323	
21									1212

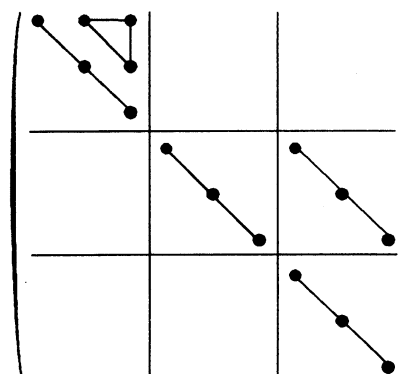
with

$$t_{1111} - t_{1122} = t_{1212} + t_{1221}.$$

There are 10 independent components.

1.1.4.9.9.7. Cubic system

(i) Groups 23 , $\bar{3}m$



with

$$t_{1111} - t_{1122} = t_{1212} + t_{1221}.$$

There are 5 independent components.