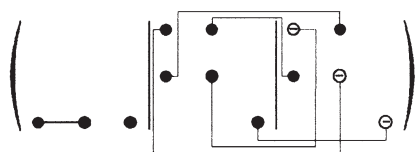


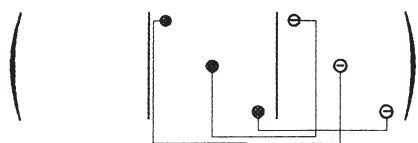
1.1. INTRODUCTION TO THE PROPERTIES OF TENSORS



There are 7 independent components.

1.1.4.8.5.2. Group 422

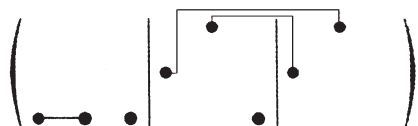
One combines the reductions for groups 4 and 222:



There are 3 independent components.

1.1.4.8.5.3. Group 4mm

One combines the reductions for groups 4 and 2m:



There are 4 independent components.

1.1.4.8.5.4. Group 4/m

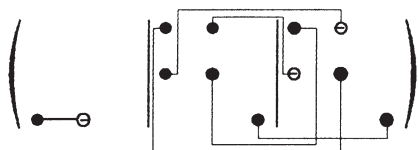
All the components are equal to zero.

1.1.4.8.5.5. Group $\bar{4}$

The matrix corresponding to axis $\bar{4}$ is

$$\begin{pmatrix} 0 & \bar{1} & 0 \\ 1 & 0 & 0 \\ 0 & 0 & \bar{1} \end{pmatrix}$$

and the form of the 3×9 matrix is

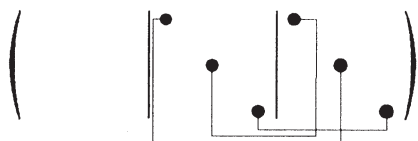


There are 6 independent components.

1.1.4.8.5.6. Group $\bar{4}2m$

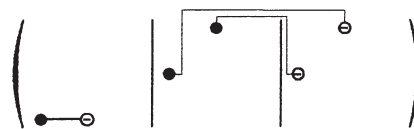
One combines either the reductions for groups $\bar{4}$ and 222, or the reductions for groups 4 and 2mm.

(i) Twofold axis parallel to Ox_1 :



There are 6 independent components.

(ii) Mirror perpendicular to Ox_1 (the twofold axis is at 45°)



The number of independent components is of course the same, 6.

1.1.4.8.5.7. Group 4/mmm

All the components are equal to zero.

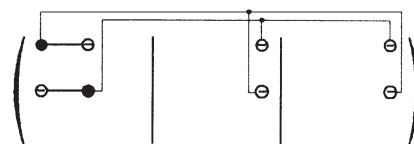
1.1.4.8.6. Hexagonal and cylindrical systems

1.1.4.8.6.1. Groups 6, A_∞ , 622, $A_\infty \infty A_2$, 6mm and $A_\infty \infty M$

It was shown in Section 1.1.4.6.2.3 that, in the case of tensors of rank 3, the reduction is the same for axes of order 4, 6 or higher. The reduction will then be the same as for the tetragonal system.

1.1.4.8.6.2. Group $\bar{6} = 3/m$

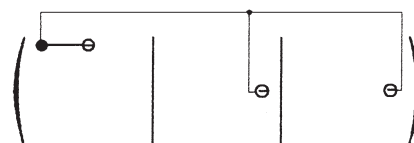
One combines the reductions for the groups corresponding to a threefold axis parallel to Ox_3 and to a mirror perpendicular to Ox_3 :



There are 2 independent components.

1.1.4.8.6.3. Group $\bar{6}2m$

One combines the reductions for groups 6 and 2mm:



There is 1 independent component.

1.1.4.8.6.4. Groups 6/m, $(A_\infty/M)C$, 6/mmm and $(A_\infty/M) \infty (A_2/M)C$

All the components are equal to zero.

1.1.4.8.7. Cubic and spherical systems

1.1.4.8.7.1. Group 23

One combines the reductions corresponding to a twofold axis parallel to Ox_3 and to a threefold axis parallel to [111]:



There are 2 independent components.