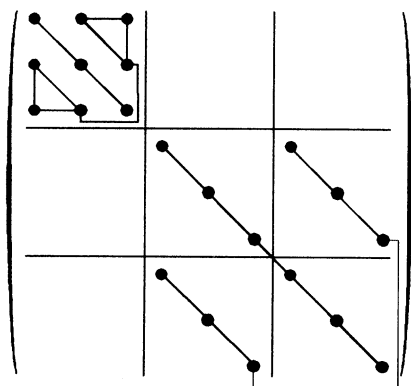


1. TENSORIAL ASPECTS OF PHYSICAL PROPERTIES

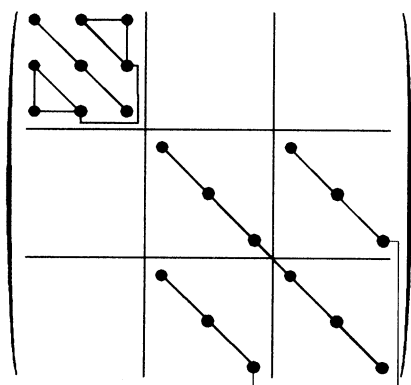
1.1.4.9.7.2. Groups $m\bar{3}m$, 432 , $\bar{4}3m$



There are 4 independent components. The tensor is symmetric.

1.1.4.9.8. Spherical system

1.1.4.9.8.1. Groups $\infty(A_\infty/M)C$ and ∞A_∞



with

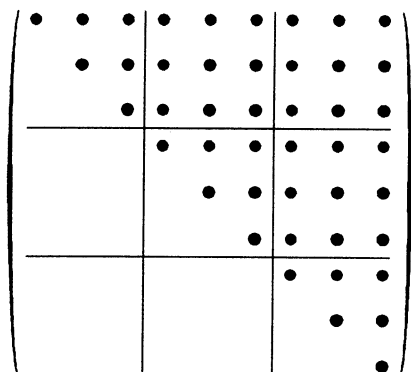
$$t_{1111} - t_{1122} = t_{1212} + t_{1221}.$$

There are 3 independent components. The tensor is symmetric.

1.1.4.9.9. Symmetric tensors of rank 4

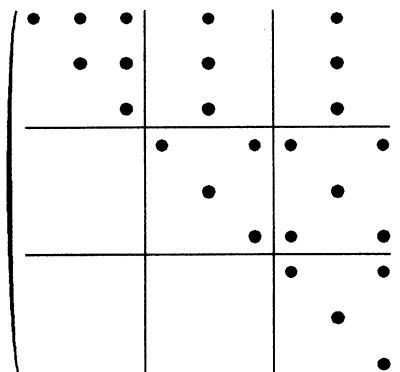
For symmetric tensors such as those representing principal properties, one finds the following, representing the nonzero components for the leading diagonal and for one half of the others.

1.1.4.9.9.1. Triclinic system



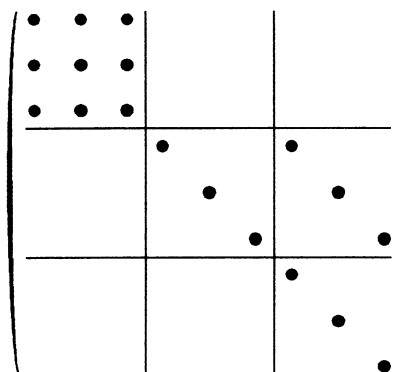
There are 45 independent coefficients.

1.1.4.9.2. Monoclinic system



There are 25 independent coefficients.

1.1.4.9.3. Orthorhombic system



There are 15 independent coefficients.

1.1.4.9.4. Trigonal system

(i) Groups 3 and $\bar{3}$

| kl | 11 | 22 | 33 | 23 | 31 | 12 | 32 | 13 | 21 |
|------|------|------|------|-------|-------|-------|-------|-------|-------|
| ij | | | | | | | | | |
| 11 | 1111 | 1122 | 1133 | 1123 | -2231 | 1112 | 1132 | -2213 | -1112 |
| 22 | | 1111 | 1133 | -1123 | 2231 | -1121 | -1132 | 2213 | -1112 |
| 33 | | | 3333 | | | 3312 | | | -3312 |
| 23 | | | | 2323 | 2331 | 2213 | 2332 | | 2213 |
| 31 | | | | | 3131 | 1132 | | 2332 | 1132 |
| 12 | | | | | | 1212 | 2231 | 1123 | 1221 |
| 32 | | | | | | | 3131 | -2331 | 2231 |
| 13 | | | | | | | | 2323 | 1123 |
| 21 | | | | | | | | | 1212 |

with

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

There are 15 independent components.