

### **line repetition groups**

The possible symmetries of arrays extending in one direction with a fixed repeating distance.

Linear polymer chains in the crystalline state must belong to one of the line repetition groups. Permitted symmetry elements are: the identity operation (symbol  $1$ ); the translation along the chain axis (symbol  $t$ ); the mirror plane orthogonal to the chain axis (symbol  $m$ ) and that containing the chain axis (symbol  $d$ ); the glide plane containing the chain axis (symbol  $c$ ); the inversion centre, placed on the chain axis (symbol  $i$ ); the two-fold axis orthogonal to the chain axis (symbol  $2$ ); the helical, or screw, symmetry where the axis of the helix coincides with the chain axis. In the latter case, the symbol is  $s(A^*M/N)$ , where  $s$  stands for the screw axis,  $A$  is the class of the helix,  $*$  and  $/$  are separators, and  $M$  is the integral number of residues contained in  $N$  turns, corresponding to the identity period ( $M$  and  $N$  must be prime to each other). The class index  $A$  may be dropped if deemed unnecessary, so that the helix may also be simply denoted as  $s(M/N)$ .

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