

1.1. Printed symbols for crystallographic items

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1.1.1. Vectors, coefficients and coordinates

Printed symbol	Explanation
a, b, c ; or a_i <i>a, b, c</i>	Basis vectors of the direct lattice Lengths of basis vectors, lengths of cell edges
α, β, γ	Interaxial (lattice) angles b \wedge c , c \wedge a , a \wedge b
<i>V</i>	Cell volume of the direct lattice
G	Matrix of the geometrical coefficients (metric tensor) of the direct lattice
<i>g_{ij}</i>	Element of metric matrix (tensor) G
r ; or x	Position vector (of a point or an atom)
<i>r</i>	Length of the position vector r
xa, yb, zc <i>x, y, z</i> ; or <i>x_i</i>	Components of the position vector r Coordinates of a point (location of an atom) expressed in units of <i>a, b, c</i> ; coordinates of end point of position vector r ; coefficients of position vector r
$\mathbf{x} = \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix}$	Column of point coordinates or vector coefficients
t	Translation vector
<i>t</i>	Length of the translation vector t
<i>t₁, t₂, t₃</i> ; or <i>t_i</i>	Coefficients of translation vector t
$\mathbf{t} = \begin{pmatrix} t_1 \\ t_2 \\ t_3 \end{pmatrix}$	Column of coefficients of translation vector t
u	Vector with integral coefficients
<i>u, v, w</i> ; or <i>u_i</i>	Integers, coordinates of a (primitive) lattice point; coefficients of vector u
$\mathbf{u} = \begin{pmatrix} u \\ v \\ w \end{pmatrix} = \begin{pmatrix} u_1 \\ u_2 \\ u_3 \end{pmatrix}$	Column of integral point coordinates or vector coefficients
o	Zero vector
<i>o</i>	Column of zero coefficients
a', b', c' ; or a'_i	New basis vectors after a transformation of the coordinate system (basis transformation)
r' ; or x', y', z' ; or <i>x'_i</i>	Position vector and point coordinates after a transformation of the coordinate system (basis transformation)
ř ; or ř ; ř , ř , ř ; or <i>ř_i</i>	New position vector and point coordinates after a symmetry operation (motion)

1.1.2. Directions and planes

Printed symbol	Explanation
<i>[uvw]</i>	Indices of a lattice direction (zone axis)
<i>⟨uvw⟩</i>	Indices of a set of all symmetrically equivalent lattice directions
<i>(hkl)</i>	Indices of a crystal face, or of a single net plane (Miller indices)
<i>(hkil)</i>	Indices of a crystal face, or of a single net plane, for the hexagonal axes a₁, a₂, a₃, c (Bravais–Miller indices)
<i>{hkl}</i>	Indices of a set of all symmetrically equivalent crystal faces ('crystal form'), or net planes
<i>{hkil}</i>	Indices of a set of all symmetrically equivalent crystal faces ('crystal form'), or net planes, for the hexagonal axes a₁, a₂, a₃, c
<i>hkl</i>	Indices of the Bragg reflection (Laue indices) from the set of parallel equidistant net planes (<i>hkl</i>)
<i>d_{hkl}</i>	Interplanar distance, or spacing, of neighbouring net planes (<i>hkl</i>)

1.1.3. Reciprocal space

Printed symbol	Explanation
a*, b*, c* ; or a'_i* <i>a*, b*, c*</i>	Basis vectors of the reciprocal lattice Lengths of basis vectors of the reciprocal lattice
$\alpha^*, \beta^*, \gamma^*$	Interaxial (lattice) angles of the reciprocal lattice b* \wedge c* , c* \wedge a* , a* \wedge b*
r* ; or h	Reciprocal-lattice vector
<i>h, k, l</i> ; or <i>h_i</i>	Coordinates of a reciprocal-lattice point, expressed in units of <i>a*, b*, c*</i> , coefficients of the reciprocal-lattice vector r*
<i>V*</i>	Cell volume of the reciprocal lattice
G*	Matrix of the geometrical coefficients (metric tensor) of the reciprocal lattice

1.1.4. Functions

Printed symbol	Explanation
$\rho(xyz)$	Electron density at the point <i>x, y, z</i>
<i>P(xyz)</i>	Patterson function at the point <i>x, y, z</i>
<i>F(hkl)</i> ; or <i>F</i>	Structure factor (of the unit cell), corresponding to the Bragg reflection <i>hkl</i>
$ F(hkl) $; or $ F $	Modulus of the structure factor <i>F(hkl)</i>
$\alpha(hkl)$; or α	Phase angle of the structure factor <i>F(hkl)</i>