

1.90: Reciprocal lattice

The reciprocal lattice is constituted by the set of all possible linear combinations of the basis vectors \mathbf{a}^* , \mathbf{b}^* , \mathbf{c}^* of the reciprocal space. A point (*node*), H , of the reciprocal lattice is defined by its position vector:

$$\mathbf{OH} = \mathbf{r}_{\mathbf{hkl}}^* = h \mathbf{a}^* + k \mathbf{b}^* + l \mathbf{c}^*.$$

If H is the n th node on the row OH , one has:

$$\mathbf{OH} = n \mathbf{OH}_1 = n (h_1 \mathbf{a}^* + k_1 \mathbf{b}^* + l_1 \mathbf{c}^*),$$

where H_1 is the first node on the row OH and h_1 , k_1 , l_1 are relatively prime.

The generalization of the reciprocal lattice in a four-dimensional space for incommensurate structures is described in Section 9.8 of *International Tables of Crystallography, Volume C*.

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