International Tables for Crystallography (2013). Vol. D, References, p. 348.

excitations are characterized by *irreducible representations* of the symmetry group of the system, the well proven tools of the theory of representations are at hand to work out the consequences (if common sense does not readily provide the answer).

For an experimental physicist, symmetry analysis is invaluable in designing the experimental arrangement expected to give evidence of some particular phenomenon. The type of answer one may expect from such analysis is characteristic of the group-theoretical predictions. One can learn whether a particular effect is *allowed* or *forbidden*, and – if it is allowed – one can learn *how many* independent coefficients may be needed to describe it. Symmetry analysis alone cannot predict *how large* the effect is, or *why* it occurs, though it may well indicate the way to make it more easily observable. In order to understand or justify its actual magnitude, one has to analyse in greater detail the underlying microphysical mechanisms; however, the analysis must be consistent with restrictions dictated by the symmetry of the problem and, here again, symmetry arguments with powerful group-theoretical tools provide reliable guidance.

For the sake of brevity, citations have been largely suppressed in the present overview. Instead, the relevant sources are included in the list of references.

For detailed information about all the varied aspects of light scattering in solids and recent advances in this vast and fruitful field, the reader is referred to specialized monographs, *e.g.* Turrell (1972), Hayes & Loudon (1978), and to a comprehensive series edited by Cardona & Güntherodt (1975–).

2.3.8. Glossary

$\alpha, \beta, \gamma, \delta, \ldots, \mu, \nu$: Greek indices are used for Cartesian components of vectors and tensors (summation over repeated indices is understood).

$\mathbf{a}_j$	atomic displacement Raman tensor of the jth phonon mode, defined as $\partial\boldsymbol{\chi}/\partial Q_j$
$\mathbf{b}$	susceptibility derivative $\partial\boldsymbol{\chi}/\partial\mathbf{E}$ (closely related to the electro-optic tensor $\mathbf{r}$)
c	velocity of light
$\mathbf{c}$	elastic stiffness tensor
$\mathbf{d}$	piezoelectric tensor
$\boldsymbol{\chi}$	susceptibility tensor
$\mathbf{e}_{I,S}$	polarization vector of incident and scattered light
$\mathbf{e}_\kappa(\mathbf{q}, j)$	phonon eigenvector of the jth phonon mode of wavevector $\mathbf{q}$
$\mathbf{E}$	electric field intensity
$\mathbf{f}$	magneto-optic tensor
$\gamma_{j,\mathbf{q}}$	damping constant of mode $(j, \mathbf{q})$
$\mathbf{H}$	magnetic field intensity
ε_0	permittivity of free space
$\boldsymbol{\varepsilon}$	permittivity tensor
$\mathbf{k}_{I,S}$	wavevector of incident and scattered light
$n_{I,S}$	refractive index for incident and scattered light
$\mathbf{P}$	polarization
$\mathbf{q}$	phonon wavevector
$Q_j(\mathbf{q})$	normal coordinate (amplitude of the jth phonon mode of wavevector $\mathbf{q}$)
$\mathbf{R}^j$	Raman tensor of jth phonon mode
$\mathbf{S}$	strain tensor
$\mathbf{T}$	stress tensor
σ	scattering cross section
ω	angular frequency
$\mathbf{Z}(\mathbf{q})$	effective charge matrix

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