

1.11. TENSORIAL PROPERTIES OF LOCAL CRYSTAL SUSCEPTIBILITIES

1.11.7. Glossary

$\chi(\mathbf{r})$	local susceptibility tensor in direct space
$\chi(\mathbf{H})$	Fourier components of the local susceptibility tensor
\mathbf{H}	reciprocal-lattice vector
\mathbf{e}	polarization vector of an X-ray wave
\mathbf{k}	wavevector of an X-ray wave
R_{ij}^g	matrix corresponding to point-group operator g
σ	polarization vector perpendicular to the scattering plane
π	polarization vector in the scattering plane
θ	Bragg angle
φ	azimuthal angle of rotation about a reciprocal-lattice vector
$\mathbf{A}(\mathbf{r})$	vector potential of the electromagnetic wave
$\mathbf{P}(\mathbf{r})$	momentum of an electron
ω	frequency of an electromagnetic wave
λ	wavelength of the radiation
E_i	energy of a discrete atomic level
\mathbf{s}	spin of an electron
$f(\mathbf{k}, \mathbf{e}, \mathbf{k}', \mathbf{e}')$	scattering amplitude
\mathbf{G}	scattering vector
ϵ_{ijk}	Levi-Civita symbol
ω_{ca}	transition frequency for states a and c
Γ	energy width of the excited state
p_a	probability that the state $ a\rangle$ of the scatterer is occupied
f_{jk}	tensor atomic factor
$F_{jk}(\mathbf{H})$	structure-factor tensor of rank 2
$I_{\mathbf{H}}(\mathbf{e}', \mathbf{e})$	intensity of the reflection
EL	notation of the electric multipole transition. $E1$: the dipole; $E2$: the quadrupole
ML	notation of the magnetic multipole transition
L	orbital moment of electron
D_{jk}	dipole–dipole tensor atomic factor
D_{jk}^+	symmetric part of the dipole–dipole tensor atomic factor
D_{jk}^-	antisymmetric part of the dipole–dipole tensor atomic factor
I_{jkl}	third-rank tensor describing the dipole–quadrupole resonant X-ray scattering
I_{jkl}^{++}	part of the third-rank tensor invariant under time inversion and symmetric under the permutation of j and k
I_{jkl}^{+-}	part of the third-rank tensor non-invariant under time inversion and symmetric under the permutation of j and k
I_{jkl}^{-+}	part of the third-rank tensor invariant under time inversion and antisymmetric under the permutation of j and k
I_{jkl}^{--}	part of the third-rank tensor non-invariant under time inversion and antisymmetric under the permutation of j and k
Q_{ijkl}	fourth-rank tensor describing the quadrupole–quadrupole resonant X-ray scattering
Tr	trace of matrix
\mathbf{m}	magnetic moment of an atom

\mathbf{Y}_{LM}	spherical tensor
$X_q^{(p)}$	component of the spherical tensor depending only on the incident and scattered radiation
$F_q^{(p)}$	component of the spherical tensor associated with the tensor properties of the absorbing atom

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