

1.11. TENSORIAL PROPERTIES OF LOCAL CRYSTAL SUSCEPTIBILITIES

1.11.7. Glossary

$\chi(\mathbf{r})$	local susceptibility tensor in direct space	\mathbf{Y}_{LM}	spherical tensor
$\chi(\mathbf{H})$	Fourier components of the local susceptibility tensor	$X_q^{(p)}$	component of the spherical tensor depending only on the incident and scattered radiation
\mathbf{H}	reciprocal-lattice vector	$F_-^{(p)}q$	component of the spherical tensor associated with the tensor properties of the absorbing atom
\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		

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