IE Symbols and units

Most symbols adopted in this volume are those which are recommended by S.U.N. Commission of IUPAP [78IUP] or used in the International Tables for X-ray Crystallography [65Lon], [83Hah], [92Wil]. The International system of units (Le Système International (SI) d'Unités) is used throughout this volume. Sometimes, however, the traditional use prefers other units for special quantities (e.g. kayser (cm^{-1}) in optics). In such cases, the quantities are given in both SI units and traditional units in most figures and tables in this volume. An exception is Å instead of 0.1 nm. Crystallographic data are presented in Å without conversion to nm.

In Table IE-1, symbols used frequently in this volume are listed together with their units. In Table IE-2, symbols used as subscripts and superscripts are listed. Conversion factors from the SI (MKSA) units to the electrostatic and the electromagnetic units for important quantities are given in Table IE-3.

Table IE-1. Symbols and units.

Symbols are arranged first in the order of the Latin alphabet and then the Greek alphabet. Such symbols as ΔH are arranged according to the letters following Δ (e.g. ΔH is to be found in the place of H, not Δ).

a) Letters and signs

a, b, c, ...	Wyckoff notations for atomic positions, see [65Lon]
(hkl)	Miller indices
{hkl}	equivalent (hkl)'s in cubic or other systems
[uvw]	direction parallel to $\boldsymbol{r}$ = u$\boldsymbol{a}$ + v$\boldsymbol{b}$ + w$\boldsymbol{c}$; u, v, w: integers (referred to the *a*, *b*, *c* axes of the paraelectric phase unless special remarks are made.)
<uvw>	equivalent [uvw]'s in cubic or other systems
‖	parallel to
⊥	perpendicular to

b) Abbreviations

space group	international and Schoenflies symbol	LT	low temperature
I, II, III, ...	names of phases	mon	monoclinic
A, AF	antiferroelectric	NMR	nuclear magnetic resonance
(A)	possibility of being antiferroelectric	NQR	nuclear quadrupole resonance
A, B, C, ...	symbol for atom, various compositions	orth	orthorhombic
ac	alternating current	P	paraelectric
cub, c	cubic	(P)	possibility of being paraelectric
DTA	differential thermal analysis	pc	pseudocubic
dc	direct current	pol	polarization
ESR	electron spin resonance	PTCR	positive temperature coeff. of resistance
F	ferroelectric	R	Raman
(F)	possibility of being ferroelectric	rh, r	rhombohedral
FS	fine structure	RT	room temperature
hex, h	hexagonal	SAW	surface acoustic wave
HFS	hyperfine structure	SHG	second harmonic generation
HT	high temperature	Sm	smectic
Im	imaginary part	ss	solid solution
IR	infrared	tetr	tetragonal
liq	liquid	tri	trigonal
LA	longitudinal acoustic	TA	transverse acoustic
LO	longitudinal optic	TO	transverse optic

c) Symbols and units

Symbols	Units	Definitions
A	numeral	Absorption
A	kg kg^{-1}, kg m^{-3}, wt%	solubility
A, B	m^{-1}	HFS parameters
$^{n}A_{ij}$	A m^{-1}	hyperfine splitting tensor, n: nuclear mass number
$^{n}A_{i}$	A m^{-1}	principal value of hyperfine splitting tensor, n: nuclear mass number
$^{n}A_{\parallel}$, $^{n}A_{\perp}$	A m^{-1}	hyperfine splitting parameters in axial symmetry, n: nuclear mass number
ΔA	K^{-1}	change in slope of $1/\kappa$ vs. T curve.
a	m^{-1}	FS parameter
$\boldsymbol{a}$, $\boldsymbol{b}$, $\boldsymbol{c}$	Å	unit cell vector
a, b, c	Å	length of unit cell edges
$\boldsymbol{a}^*$, $\boldsymbol{b}^*$, $\boldsymbol{c}^*$	$Å^{-1}$	unit cell vector in reciprocal space
$\boldsymbol{B}$	T (≡Wb m^{-2} ≡V s m^{-2})	magnetic induction, flux density
B	$Å^2$	isotropic temperature parameter [cf. Eq. (e) in Introduction]
B_{ij}	numeral	anisotropic temperature parameter [cf. Eq. (a) in Introduction]
b	m^{-1}	FS parameter
b_{ij}	numeral	anisotropic temperature parameter [cf. Eq. (b) in Introduction]
c	m s^{-1}	light velocity in vacuum (c = 2.99792458 10^8 m s^{-1})
C	K	Curie-Weiss constant with regard to κ : $\kappa = \kappa_\infty + C/(T—\Theta_p)$
C_p	J K^{-1} mol^{-1}	molar heat capacity at constant pressure
c_p	J K^{-1} kg^{-1}	specific heat capacity at constant pressure
c_L	N m^{-2}	longitudinal elastic modulus
c_s	N m^{-2}	shear elastic modulus
$c_{\lambda\mu}$	N m^{-2}	elastic stiffness
D	m^{-1}	FS parameter
D	numeral	dissipation factor
$\boldsymbol{D}$	C m^{-2}	electric displacement
d	m	thickness of specimen
d	Å	bond length
d_{hkl}	Å	interplanar spacing of planes (hkl)
$d_{i\lambda}$	C N^{-1}	piezoelectric strain constant
$d_{i\lambda}$	m V^{-1}	susceptibility for second harmonic generation (see section IC)
E	eV	energy
E	N m^{-2}	Young's modulus
E	m^{-1}	FS parameter
$\boldsymbol{E}$	V m^{-1}	electric field strength
ΔE, ΔE_{quad}	m s^{-1}	quadrupole splitting in Mössbauer spectrum
E_{bias}	V m^{-1}	bias field
E_c	V m^{-1}	coercive field
E_{crit}	V m^{-1}	critical field
E_G	eV	energy separation, band gap
e	C	charge of electron ($\|e\|$ = 1.60217733(49)·10^{-19} C)
e	m^{-1}	polarization vector of phonon
$e_{i\lambda}$	C m^{-2}	piezoelectric stress constant
e^2qQ/h	Hz	nuclear quadrupole coupling constant
$eQ\phi_{ij}/h$	Hz	component of nuclear quadrupole coupling tensor

Symbols	Units	Definitions
F	m^{-1}	FS parameter
$F.M._{R_I}$	$C\ m\ J^{-1}$	$F.M._{R_I} = p_i\,\rho^{-1} c_p^{-1}$, figure of merit for current responsivity
$F.M._{R_V}$	$C\ m\ J^{-1}$	$F.M._{R_V} = p_i\,\rho^{-1} c_p^{-1} \kappa^{-1}$, figure of merit for voltage responsivity
$F.M._N$	$C\ m\ J^{-1}$	$F.M._N = p_i\,\rho^{-1} c_p^{-1} \kappa^{-1/2}$, figure of merit for material noise limited signal-to-noise ratio
$F.M._{D^*}$	$Cm^{3/2} J^{-1} \Omega^{1/2}$	$F.M._{D^*} = p_i \rho^{-1} c_p^{-1} \sigma^{-1/2}$, figure of merit for defectivity
f	Hz	frequency
f_A	Hz	antiresonance frequency
$f_{i\lambda}$	$m^2\ C^{-1}$	piezoelectric strain constant
f_r	Hz	dielectric relaxation frequency
f_R	Hz	resonance frequency
Δf_R	Hz	$f_A - f_R$
$f_R \cdot r$	Hz m	radial frequency constant
g_i	numeral	principal value of g-tensor
g_{ij}	numeral	component of gyration tensor for optical activity
g_{ij}	numeral	component of g-tensor
$g_{i\lambda}$	$m^2\ C^{-1}$	piezoelectric strain constant
$\boldsymbol{H}$	$A\ m^{-1}$	magnetic field strength
$\mathbf{H}$	$J\ m^{-3}$	spin Hamiltonian
H_c	$A\ m^{-1}$	coercive field strength, coercive force
H_V	$kg\ m^{-2}$	Vickers hardness number
ΔH	$A\ m^{-1}$	magnetic resonance half width
$\Delta' H$	$A\ m^{-1}$	separation between maximum and minimum of the derivative of the magnetic resonance curve
$\langle \Delta H^2 \rangle$	$A^2\ m^{-2}$	second moment of magnetic resonance curve
ΔH_{pp}	$A\ m^{-1}$	line width in ESR
ΔH_1	$A\ m^{-1}$	line shift in ESR
$\delta' H$	$A\ m^{-1}$	magnetic resonance line separation
h	J s	Planck constant (h = 6.6260755(40) $\cdot 10^{-34}$ J s)
$h_{i\lambda}$	$N\ C^{-1}$	piezoelectric stress constant
I	A	electric current
I	$J\ s^{-1}$	scattering intensity
I	numeral	nuclear spin quantum number
I_{hkl}	$J\ s^{-1}$	integrated intensity of Bragg reflection (hkl)
I_s	A	switching current
J	A	photovoltaic current
$\boldsymbol{J}$	$V\ s\ m^{-2}$	magnetic polarization, $\boldsymbol{J} = \boldsymbol{B} - \mu_0 \boldsymbol{H}$
j	$A\ m^{-2}$	electric current density
k	$J\ K^{-1}$	Boltzmann constant (k = 1.380658(12)$\cdot 10^{-23}$ J K^{-1})
k	m^{-1}	wave number vector
$k_{i\lambda}$	numeral	electromechanical coupling factor
k_p	numeral	planar coupling factor
k_t	numeral	thickness coupling factor
$L_{\lambda\mu}$	$m^2\ V^{-2}$	quadratic electrooptic constant for $\boldsymbol{E}$
l	m	length
$\Delta l/l$	$m\ m^{-1}$	elongation per unit length
l_{ij}	m	coherence length
M	numeral	molecular weight
$\boldsymbol{M}$	$A\ m^{-1}$	magnetization, $\boldsymbol{M} = \boldsymbol{B}/\mu_0 - \boldsymbol{H}$

Symbols	Units	Definitions
M_s	A m^{-1}	spontaneous magnetization
$M_{\lambda\mu}$	$m^4 C^{-2}$	quadratic electrooptic constant for ***P***
m_0	kg	electron mass (m_0 = 9.1093897(54) 10^{-31} kg)
m^*	m_0	effective mass of charge carrier
$N_{\lambda\mu}$	Hz m	frequency constant
N/N_0	numeral	counting rate in Mössbauer spectrum
n	numeral	refractive index
n_a, n_b, n_c	numeral	refractive indices for ***E*** of light || *a*, *b*, *c*
n_e	numeral	refractive index for extraordinary light
n_o	numeral	refractive index for ordinary light
n_α , n_β , n_γ	numeral	principal refractive indices ($n_\alpha < n_\beta < n_\gamma$)
Δn	numeral	birefringence
P	W m^{-2}	light intensity
P	C m^{-2}	dielectric polarization
P_L	C m^{-2}	longitudinal polarization
P_{pyro}	C m^{-2}	pyroelectric charge
P_r	C m^{-2}	remanent polarization
P_s	C m^{-2}	spontaneous polarization
P_w	C m^{-2}	wing polarization
p	Pa	hydrostatic pressure (Pa = N m^{-2})
p	m	helical pitch
p_{eff}	μ_B	effective magnetic moment of atom or ion
p_i	C K^{-1} m^{-2}	pyroelectric coefficient: $p_i = \partial P_{si} / \partial T$
$p_{\lambda\mu}$	m m^{-1}	piezooptic constant for **S**
Q	numeral	qualify factor
Q^{-1}	numeral	internal friction
$Q_E = 1/\tan \delta$	numeral	electrical quality factor
ΔQ_m	J mol^{-1}	transition heat per mole
$Q_{\lambda\mu}$	$m^4 C^{-2}$	electrostrictive constant for ***P***
q	m^{-1}	wave number ($2\pi/\lambda$)
$\boldsymbol{q}$	m^{-1}	wave number vector
R	Ω	resistance
R	numeral	reflectivity
R	numeral, %	discrepancy index (or reliability factor)
R_H	$m^3 C^{-1}$	Hall constant
R_M	numeral	counting rate
r_c	m V^{-1}	$r_c = r_{33} - (n_o/n_e)^3 r_{13}$
$r_{\lambda i}$	m V^{-1}	electrooptic constant for ***E***
S	numeral	spin quantum number of atom or ion
S	V K^{-1}	Seebeck coefficient
S	J K^{-1} m^{-3}	entropy per unit volume
S_m	J K^{-1} mol^{-1}	entropy per mole
ΔS_m	J K^{-1} mol^{-1}	transition entropy per mole
S	m m^{-1}	strain tensor
S_{ij}	m m^{-1}	component of strain tensor
S_λ	m m^{-1}	component of strain tensor: $S_\lambda = S_{ij}$ for i = j, $S_\lambda = 2S_{ij}$ for i ≠ j
s	numeral	electron spin quantum number
$s_{\lambda\mu}$	$m^2 N^{-1}$	elastic compliance
T	K, °C	temperature

Symbols	Units	Definitions
T	numeral	transmission
T_g	K, °C	glas transition temperature
T_{melt}	K, °C	melting point
T_x	K, °C	crystallization onset temperature
T	N m^{-2}	stress tensor
T_{ij}	N m^{-2}	component of stress tensor
T_λ	N m^{-2}	component of stress tensor, $T_\lambda = T_{ij}$
T_1	sec, s	spin-lattice relaxation time
$T_{1\rho}$	sec, s	spin lattice relaxation time in rotating frame
T_2	sec, s	spin-spin relaxation time
ΔT_{irrev}	K, °C	irreversible electrocaloric temperature change
ΔT_{rev}	K, °C	reversible electrocaloric temperature change
t	sec, s	time
t_s	sec, s	switching time
t_m	sec, s	time for maximum switching current
ΔU	eV, J mol^{-1}	activation energy
U_{ij}	$Å^2$	anisotropic temperature parameter [cf. Eq. (d) in Introduction]
V	V	voltage
V	° '	1/2 (optical axial angle)
V	$Å^3$	volume of unit cell
V	° m^{-1} T^{-1}	Verdet constant
V_m	$Å^3$	volume for formula unit
V_π	V	half-wave voltage
V_{zz}	V m^{-2}	electric field gradient
υ	m s^{-1}	sound velocity
υ	m s^{-1}	velocity of absorber in Mössbauer effect
υ_0	m s^{-1}	effective amplitude of vibration velocity
υ_m	m^3 mol^{-1}	molar volume
X, Y, Z	Å, m	orthogonal coordinate system. (When b is the unique axis, $Y \parallel b$, $Z \parallel c$ and the X axis forms a rectangular coordinate system together with the Y and Z axes.)
x, y	numeral	molar fraction
x, y, z	numeral	fractional coordinates of atoms in the unit cell
x, y, z	Å, m	principal axes of tensor ellipsoid
y	numeral	normalized yield
Z	numeral	number of formula units per cell
Z_{vac}	numeral	number of vacancies
α	m^{-1}, dB m^{-1}, neper m^{-1}	acoustic absorption coefficient
α	dB s^{-1}	ultrasonic attenuation
α	m^{-1}	optical absorption coefficient
α	m^2 s^{-1}	thermal diffusivity
α	° '	rhombohedral angle
α_{ij}	K^{-1}	linear thermal expansion coefficient
α_κ	numeral	temperature coefficient of κ
α, β, γ	° '	interaxial angles: $\mathbf{b} \wedge \mathbf{c}$, $\mathbf{c} \wedge \mathbf{a}$, $\mathbf{a} \wedge \mathbf{b}$
α^*, β^*, γ^*	° '	interaxial angles: $\mathbf{b}^* \wedge \mathbf{c}^*$, $\mathbf{c}^* \wedge \mathbf{a}^*$, $\mathbf{a}^* \wedge \mathbf{b}^*$
β_{ij}	$Å^2$	anisotropic temperature parameter [cf. Eq. (c) in Introduction]

Symbols	Units	Definitions
Γ	Hz	full width at half maximum of spectral line
Γ	Hz	damping parameter
Γ	$m\ s^{-1}$	line width of Mössbauer absorption line (half width at half maximum)
γ	$m\ A^{-1}\ s^{-1}$	gyromagnetic ratio
γ	K^{-1}	cubic thermal expansion coefficient
δ	$m\ s^{-1}$	isomer shift
δ	rad	dielectric loss angle
tan δ	numeral	dielectric loss tangent: $\tan\delta = \kappa''/\kappa'$
ε	$F\ m^{-1}$	permittivity, $D = \varepsilon E$
ε_{ij}	$F\ m^{-1}$	components of dielectric permittivity tensor
ε_0	$F\ m^{-1}$	permittivity of vacuum ($\varepsilon_0 = 8.854187817 \cdot 10^{-12}$ F m^{-1})
ζ	$V\ m^9\ C^{-5}$	coefficient of power series expansion of electric field strength: $E = (1/\chi_p)P + \xi P^3 + \zeta P^5$
ζ	numeral	reduced wave vector coordinate
η	numeral	asymmetry parameter
Θ	K, °C	transition temperature
Θ_{II-I}	K, °C	transition temperature between the phases II and I
Θ_c	K, °C	superconducting transition temperature
Θ_f	K, °C	ferroelectric transition temperature
Θ_a	K, °C	antiferroelectric transition temperature
Θ_p	K, °C	paraelectric Curie temperature in the Curie-Weiss law
$\Theta_{f\ magn}$	K, °C	ferromagnetic transition temperature
Θ_N	K, °C	antiferromagnetic Néel temperature
$\Theta_{p\ magn}$	K, °C	paramagnetic Curie temperature in the Curie-Weiss law
Θ_ϕ	K, °C	phase match temperature
$\Delta\Theta$	K, °C	shift of phase transition temperature
θ	°	tilt angle
θ_B	rad, ° '	Bragg angle (scattering angle = $2\theta_B$)
κ	numeral	dielectric constant: $\kappa = \varepsilon/\varepsilon_0$
κ_0	numeral	static dielectric constant
κ_∞	numeral	temperature-independent term in Curie-Weiss law: $\kappa = \kappa_\infty + C/(T-\Theta_p)$
κ', κ''	numeral	real and imaginary parts of complex dielectric constant: $\kappa = \kappa' + i\kappa''$
κ_{ij}	numeral	component of dielectric constant tensor
$\kappa_{[uvw]}$	numeral	dielectric constant for $\boldsymbol{E} \parallel [uvw]$
$\kappa_{(hkl)}$	numeral	dielectric constant of crystal cut parallel to (hkl)
κ_a, κ_b, κ_c	numeral	dielectric constant along the *a*, *b*, *c* axes
λ	m	wave length
λ	$J\ s^{-1}\ m^{-1}\ K^{-1}$	thermal conductivity
$1/\lambda$	m^{-1}	wave number per unit length
λ, μ, ν	numeral	direction cosines
μ_0	$H\ m^{-1}$	permeability of vacuum ($\mu_0 = 4\pi \cdot 10^{-7}$ H m^{-1})
μ_B	$J\ T^{-1}$	Bohr magneton ($\mu_B = 9.2740154(31) \cdot 10^{-24}$ J T^{-1})
μ_n	$J\ T^{-1}$	nuclear magneton ($\mu_n = 5.0507866(17) \cdot 10^{-27}$ J T^{-1})
μ_H	$m^2\ V^{-1}\ s^{-1}$	Hall mobility
ν	Hz	frequency (mainly used in optical properties)
$\Delta\nu$	Hz	splitting of the resonance frequencies
$\Delta\nu$	Hz	frequency shift

Symbols	Units	Definitions
ν_H	Hz	frequency of resonance field
ν_L	Hz	Larmor frequency
ν_c	Hz	correlation frequency
$\delta\nu$	Hz	half width at half maximum
$\delta\nu$	Hz	doublet separation of NQR spectrum
ξ	$V\ m^5\ C^{-3}$	coefficient of power series expansion of electric field strength: $E = (1/\chi_p)P + \xi P^3 + \zeta P^5$
ξ, η, ζ	numeral	fractional coordinates in the reciprocal unit cell
$\Pi_{\lambda\mu}$	$m^2\ N^{-1}$	piezooptic constant for **T**
$\pi_{i\lambda}$	$m^2\ N^{-1}$	piezoresistive constant
ρ	$\Omega\ m$	resistivity
ρ	$°\ m^{-1}$	specific rotatory power
ρ	$kg\ m^{-3}$	density
ρ_a	$kg\ m^{-3}$	apparent density
ρ_e	$Å^{-3}$	electron density (number of electrons per $Å^3$)
σ_{ph}	$\Omega^{-1}\ m^{-1}$	photoconductivity
ρ_r	$kg\ m^{-3}$	relative density
ρ_X	$kg\ m^{-3}$	X-ray density
$\rho_{\lambda i}$	$m^2\ C^{-1}$	electrooptic constant for ***P***
σ	$\Omega^{-1}\ m^{-1}$	conductivity
σ	Ω^{-1}	surface conductivity
σ	$C\ m^{-1}$	charge density
σ	numeral	standard deviation in fractional coordinates of atomic position
σ	$Å^2$	standard deviation in temperature parameter
σ	$A\ m^2\ kg^{-1}$	magnetic moment per unit mass, specific magnetization
σ_m	$A\ m^2\ mol^{-1}$	magnetic moment per mole
τ	sec, s	dielectric relaxation time
τ_c	sec, s	correlation time
ϕ	° '	rotation angle
ϕ_o	° '	rotation angle of optical indicatrix
ϕ_{ij}	$V\ m^{-2}$	components of the electric field gradient tensor
χ	$F\ m^{-1}$	electric susceptibility
χ_p	$F\ m^{-1}$	paraelectric susceptibility
$\chi_{magn\ m}$	$m^3\ mol^{-1}$	molar magnetic susceptibility
$\chi_{magn\ \rho}$	$m^3\ kg^{-1}$	mass magnetic susceptibility, specific susceptibility
χ_{me}	$s\ m^{-1}$	magnetoelectric susceptibility

Table IE-2. Subscripts and superscripts arranged alphabetically

Superior	Definitions
0	at 0 K
numeral (left)	mass number
D	at electric displacement ***D***
E	at field strength ***E***
P	at polarization ***P***

Superior	Definitions
S	at entropy *S* (adiabatic)
S	at strain **S**
T	at temperature *T*
T	at stress **T**

Inferior	Definitions	Inferior	Definitions
a	antiferroelectric	crit	critical
a, *b*, *c*	parallel to the *a*, *b*, *c* axes	cub, c	cubic
A, B, a, b, c,	sublattice A, B, a, b, c, ...	det	determined
d	diffuse	dia	diamagnetic
e	extraordinary light	eff	effective
f	ferroelectric	exp	experimental
ρ	per gram (only for magnetic quantities)	ext	external
		fmagn	ferromagnetic
HT	high temperature	hex, h	hexagonal
i, j, k	numerals (1...3)	int	internal
λ, μ, ν	numerals (1...6)	loc	local
LT	low temperature	magn	magnetic
m	per mole; per molecule; maximum (in a few cases)	max	maximum
		me	magnetoelectric
n	nuclear, per nucleus	mech	mechanical
n	normalized	melt	melting
o	ordinary light	min	minimum
p	paraelectric	mon	monoclinic
p	at pressure *p*	obs	observed
R	resonance	orth	orthorhombic
r	remanent	pmagn	paramagnetic
s	spontaneous; switching	prk	perovskite
v	at volume v	ps	pseudo
[uvw]	parallel to the [uvw] direction	pyro	pyroelectric
(hkl)	perpendicular to the (hkl) plane	quad	quadrupole
||	parallel	res	resonance
⊥	perpendicular	rh, r	rhombohedral
amagn	antiferromagnetic	sol	solid
anis	anisotropic	tetr	tetragonal
brk	breakdown	th	theoretical
calc	calculated	thr	threshold

Table IE-3. Conversion factors from the SI system to the cgs-esu and the cgs-emu systems
(Replace the value of column 3 by the value of column 4 or column 5). Arrangement is made according to the order of the properties of Table IE-1.

Quantities	Symbols	SI	cgs-esu (non-rationalized)	cgs-emu
Length	l	m	10^2 cm	10^2 cm
Mass	m	kg	10^3 g	10^3 g
Time	t	s	1 s	1 s
Density	ρ	kg m^{-3}	10^{-3} g cm^{-3}	10^{-3} g cm^{-3}
Electric field strength	E	V m^{-1}	10^{-4} / 3esu	10^6 emu
Electric displacement	$\boldsymbol{D}$	C m^{-2}	$12\pi \cdot 10^5$ esu	$4\pi \cdot 10^{-5}$ emu
Dielectric polarization	$\boldsymbol{P}$	C m^{-2}	$3 \cdot 10^5$ esu	10^{-5} emu
Dielectric constant	κ	dimensionless	1 (dimensionless)	1 (dimensionless)
Piezooptic constant	$p_{\lambda\mu}$	dimensionless	1 (dimensionless)	1 (dimensionless)

(continued)

Table IE-3. (continued)

Quantities	Symbols	SI	cgs-esu (non-rationalized)	cgs-emu
Electric susceptibility	χ	$F\ m^{-1}$	$9\cdot10^9$ (dimensionless)	10^{-11} emu
Pyroelectric coefficient	p_i	$C\ m^{-2}\ K^{-1}$	$3\cdot10^5$ esu K^{-1}	10^{-5} emu K^{-1}
Electric current density	$\boldsymbol{j}$	$A\ m^{-2}$	$3\cdot10^5$ esu	10^{-5} emu
Resistivity	ρ	Ω m	10^{-9} / 9 esu	10^{11} emu
Conductivity	σ	$\Omega^{-1}\ m^{-1}$	$9\cdot10^9$ esu	10^{-11} emu
Molar heat capacity	C_p	$J\ K^{-1}\ mol^{-1}$	10^7 erg $K^{-1}\ mol^{-1}$	10^7 erg $K^{-1}\ mol^{-1}$
Transition heat per mol	ΔQ_m	$J\ mol^{-1}$	10^7 erg mol^{-1}	10^7 erg mol^{-1}
Transition entropy per mol	ΔS_m	$J\ K^{-1}\ mol^{-1}$	10^7 erg $K^{-1}\ mol^{-1}$	10^7 erg $K^{-1}\ mol^{-1}$
Thermal conductivity	λ	$J\ m^{-1}\ s^{-1}\ K^{-1}$	10^5 erg $cm^{-1}\ s^{-1}\ K^{-1}$	10^5 erg $cm^{-1}\ s^{-1}\ K^{-1}$
Stress tensor	$\mathbf{T}$	$N\ m^{-2}$	10 dyn cm^{-2}	10 dyn cm^{-2}
Hydrostatic pressure	p	Pa (= $N\ m^{-2}$)	10 dyn cm^{-2}	10 dyn cm^{-2}
Strain tensor	$\mathbf{S}$	$m\ m^{-1}$	1 cm cm^{-1}	1 cm cm^{-1}
Elastic stiffness	$c_{\lambda\mu}$	$N\ m^{-2}$	10 dyn cm^{-2}	10 dyn cm^{-2}
Elastic compliance	$s_{\lambda\mu}$	$m^2\ N^{-1}$	$10^{-1}\ cm^2\ dyn^{-1}$	$10^{-1}\ cm^2\ dyn^{-1}$
Piezoelectric strain constant	$d_{i\lambda}$	$C\ N^{-1}$	$3\cdot10^4$ esu	10^{-6} emu
Piezoelectric stress constant	$e_{i\lambda}$	$C\ m^{-2}$	$3\cdot10^5$ esu	10^{-5} emu
Piezoelectric strain constant	$g_{i\lambda}$	$m^2\ C^{-1}$	10^{-5} / 3 esu	10^5 emu
Piezoelectric stress constant	$h_{i\lambda}$	$N\ C^{-1}$	10^{-4} / 3 esu	10^6 emu
Electrostrictive constant (for $\boldsymbol{P}$)	$Q_{\lambda\mu}$	$m^4\ C^{-2}$	10^{-10} / 9 esu	10^{10} emu
Electrooptic constant (for $\boldsymbol{P}$)	$\rho_{i\lambda}$	$m^2\ C^{-1}$	10^{-5} / 3 esu	10^5 emu
Electrooptic constant (for $\boldsymbol{E}$)	$r_{i\lambda}$	$m\ V^{-1}$	$3\cdot10^4$ esu	10^{-6} emu
Piezooptic constant (for $\mathbf{T}$)	$\Pi_{\lambda\mu}$	$m^2\ N^{-1}$	$10^{-1}\ cm^2\ dyn^{-1}$	$10^{-1}\ cm^2\ dyn^{-1}$
Quadratic electrooptic constant (for $\boldsymbol{E}$)	$L_{\lambda\mu}$	$m^2\ V^{-2}$	$9\cdot10^8$ esu	10^{-12} emu
Quadratic electrooptic constant (for $\boldsymbol{P}$)	$M_{\lambda\mu}$	$m^4\ C^{-2}$	10^{-10} / 9 esu	10^{10} emu
Hall constant	R_H	$m^3\ C^{-1}$	10^{-3} / 3 esu	10^7 emu
Magnetic induction (flux density)	$\boldsymbol{B}$	T ($\equiv$ Wb m^{-2} $\equiv$ V s m^{-2})	10^{-6} / 3 esu	10^4 G
Magnetic field	$\boldsymbol{H}$	$A\ m^{-1}$	$12\pi\cdot10^7$ esu	$4\pi\cdot10^{-3}$ Oe
Magnetic polarization ($\boldsymbol{B} = \mu_0\boldsymbol{H} + J$)	$\boldsymbol{J}$	T ($\equiv$ Wb m^{-2} $\equiv$ V s m^{-2})	10^{-6} / (12π) esu	10^4 / (4π) G
Magnetization ($\boldsymbol{B} = \mu_0(\boldsymbol{H} + \boldsymbol{M})$)	$\boldsymbol{M}$	$A\ m^{-1}$	$3\cdot10^7$ esu	10^{-3}G
Magnetic moment per unit mass, specific magnetization	σ	$A\ m^2\ kg^{-1}$	$3\cdot10^{10}$ esu $cm^3\ g^{-1}$	1 emu g^{-1}
Magnetic moment per mol	σ_m	$A\ m^2\ mol^{-1}$	$3\cdot10^{13}$ esu $cm^3\ mol^{-1}$	10^3 emu mol^{-1}
Mass magnetic susceptibility, specific susceptibility	$\chi_{magn\ \rho}$	$m^3\ kg^{-1}$	$10^3/(4\pi)$ esu $cm^3\ g^{-1}$	$10^3/(4\pi)$ emu g^{-1}
Molar magnetic susceptibility	$\chi_{magn\ m}$	$m^3\ mol^{-1}$	$10^6/(4\pi)$ esu $cm^3\ mol^{-1}$	$10^6/(4\pi)$ emu mol^{-1}
Magnetic susceptibility	χ_{magn}	dimensionless	$1/(4\pi)$ dimensionless	1/(4p) dimensionless
Magnetic resonance half width	ΔH	$A\ m^{-1}$	$12\pi\cdot10^7$ esu	$4\pi\cdot10^{-3}$ Oe
Second moment of magnetic resonance curve	$<\Delta H^2>$	$A^2\ m^{-2}$	$144\pi^2\cdot10^{14}$ esu	$16\pi^2\cdot10^{-6}$ Oe
Gyromagnetic ratio	γ	$m\ A^{-1}\ s^{-1}$	10^{-7} / (12π) esu	10^3 / (4π) $Oe^{-1}\ s^{-1}$
Isomer shift	δ	$m\ s^{-1}$	10^2 cm s^{-1}	10^2 cm s^{-1}
Magnetoelectric susceptibility	χ_{me}	$s\ m^{-1}$	10^{-2} / (4π) s cm^{-1}	10^{-2} / (4π) s cm^{-1}