

## 1.7 Abbreviations and acronyms

Abbreviations and acronyms (words formed from the initial letters of groups of words that are frequently repeated) should be used sparingly. Unless they are well established (e.g. NMR, IR) they should always be defined once in any paper, and they should generally be avoided in titles and abstracts. Abbreviations used to denote physical quantities should if possible be replaced by the recommended symbol for the quantity (e.g.  $E_i$  rather than IP for ionization energy,  $\rho$  rather than dens. for mass density).

A list of frequently used abbreviations and acronyms is given here in order to help readers, but not necessarily to encourage their universal usage. In many cases an acronym can be found written in lower case letters and in capitals. In the list that follows, only the most common usage is given.

AA	atomic absorption
AAS	atomic absorption spectroscopy
ac	alternating current
ACT	activated complex theory
A/D	analog-to-digital
ADC	analog-to-digital converter
AES	Auger electron spectroscopy
AIUPS	angle-integrated ultraviolet photoelectron spectroscopy
AM	amplitude modulated
amu	atomic mass unit (symbol: u)
AO	atomic orbital
APS	appearance potential spectroscopy
ARAES	angle-resolved Auger electron spectroscopy
AS	Auger spectroscopy
ATR	attenuated total (internal) reflection
AU	astronomical unit
bcc	body centred cubic
BET	Brunauer-Emmett-Teller
BIS	bremsstrahlung isochromat spectroscopy
BM	Bohr magneton (symbol: $\mu_B$ )
bp	boiling point
Btu	British thermal unit
CARS	coherent anti-Stokes Raman scattering
CAT	computer average of transients
CCA	coupled cluster approximation
ccp	cubic close packed
CD	circular dichroism
CEELS	characteristic electron energy loss spectroscopy
CELS	characteristic energy loss spectroscopy

CEPA	coupled electron pair approximation
cgs	centimetre-gram-second
CI	chemical ionization
CI	configuration interaction
CIDEP	chemically induced dynamic electron polarization
CIDNP	chemically induced dynamic nuclear polarization
CIMS	chemical ionization mass spectroscopy
CSRS	coherent Stokes Raman scattering
CT	charge transfer
CVD	chemical vapour deposition
CW	continuous wave
D/A	digital-to-analog
DAPS	disappearance potential spectroscopy
dc	direct current
DME	dropping mercury electrode
DRIFTS	diffuse reflectance infrared Fourier transform spectroscopy
DSC	differential scanning calorimeter
DTA	differential thermal analysis
EC	electron capture
ECD	electron capture detector
ED	electron diffraction
EDA	electron donor-acceptor [complex]
EELS	electron energy loss spectroscopy
EI	electron impact ionization
EIS	electron impact spectroscopy
EL	electroluminescence
ELDOR	electron-electron double resonance
ELEED	elastic low energy electron diffraction
emf	electromotive force
emu	electromagnetic unit
ENDOR	electron-nuclear double resonance
EPR	electron paramagnetic resonance
ESCA	electron spectroscopy for chemical applications (or analysis), see XPS
ESR	electron spin resonance
esu	electrostatic unit (see chapter 5)
ETS	electron transmission spectroscopy, electron tunneling spectroscopy
eu	entropy unit
EXAFS	extended X-ray absorption fine structure
EXAPS	electron excited X-ray appearance potential spectroscopy
FAB(MS)	fast atom bombardment (mass spectroscopy)
fcc	face centred cubic
FD	field desorption
FEESP	field-emitted electron spin-polarization [spectroscopy]
FEM	field emission [electron] microscopy

FES	field emission spectroscopy
FFT	fast Fourier transform
FI	field ionization
FID	flame ionization detector
FID	free induction decay
FIM	field-ion microscopy
FIMS	field-ion mass spectroscopy
FIR	far-infrared
FM	frequency modulated
FPD	flame photometric detector
FT	Fourier transform
FTD	flame thermionic detector
FTIR	Fourier transform infrared
FWHM	full width at half maximum
GC	gas chromatography
glc	gas-liquid chromatography
GM	Geiger-Müller
hcp	hexagonal close packed
HEED	high energy electron diffraction
HEELS	high energy electron energy loss spectroscopy
hfs	hyperfine structure (hyperfine splitting)
HMDE	hanging mercury drop electrode
HOMO	highest occupied molecular orbital
HPLC	high-performance liquid chromatography
HREELS	high-resolution electron energy-loss spectroscopy
HTS	Hadamard transform spectroscopy
HWP	half-wave potential
IC	integrated circuit
ICR	ion cyclotron resonance
id	inner diameter
IEP	isoelectric point
IETS	inelastic electron tunneling spectroscopy
ILEED	inelastic low energy electron diffraction
INDOR	internuclear double resonance
INS	inelastic neutron scattering
I/O	input-output
IP	ionization potential (symbol: $E_i$ )
IPES	inverse photoelectron spectroscopy
IPTS	international practical temperature scale
IR	infrared
IS	ionization spectroscopy
ISS	ion scattering spectroscopy
L	ligand

LASER	light amplification by stimulated emission of radiation
LC	liquid chromatography
LCAO	linear combination of atomic orbitals
LCMO	linear combination of molecular orbitals
LED	light-emitting diode
LEED	low-energy electron diffraction
LEELS	low energy electron loss spectroscopy
LEES	low-energy electron scattering
LIDAR	light detection and ranging
LIF	laser induced fluorescence
LIS	laser isotope separation
LMR	laser magnetic resonance
M	central metal
MAR	magic-angle rotation
MAS	magic-angle spinning
MASER	microwave amplification by stimulated emission of radiation
MBE	molecular beam epitaxy
MC	Monte Carlo
MCA	multichannel analyser
MCD	magnetic circular dichroism
MD	molecular dynamics
MIR	mid-infrared
MKSA	metre-kilogram-second-ampere
MM	molecular mechanics
MO	molecular orbital
MOCVD	metal organic chemical vapour deposition
MOMBE	metal organic molecular beam epitaxy
MORD	magnetic optical rotatory dispersion
MOS	metal oxide semiconductor
mp	melting point
MPI	multiphoton ionization
MRD	magnetic rotatory dispersion
MRI	magnetic resonance imaging
MS	mass spectroscopy
MW	microwave
MW	molecular weight (symbol: $M_r$ )
NCE	normal calomel electrode
NEXAFS	near edge X-ray absorption fine structure
NIR	near-infrared
NMR	nuclear magnetic resonance
NOE	nuclear Overhauser effect
NQR	nuclear quadrupole resonance
NTP	normal temperature and pressure
od	outside diameter

ODMR	optically detected magnetic resonance
ORD	optical rotatory dispersion
PAS	photoacoustic spectroscopy
PC	paper chromatography
PED	photoelectron diffraction
PES	photoelectron spectroscopy
PIPECO	photoion-photoelectron coincidence [spectroscopy]
PIS	Penning ionization (electron) spectroscopy
ppb	part per billion
pphm	part per hundred million
ppm	part per million
pzc	point of zero charge
QMS	quadrupole mass spectrometer
RADAR	radiowave detection and ranging
RAIRS	reflection/absorption infrared spectroscopy
RBS	Rutherford (ion) back scattering
RD	rotatory dispersion
RDE	rotating disc electrode
REM	reflection electron microscopy
REMPI	resonance enhanced multiphoton ionization
RF	radio frequency
RHEED	reflection high-energy electron diffraction
rms	root mean square
RRS	resonance Raman spectroscopy
RS	Raman spectroscopy
S	singlet
SCE	saturated calomel electrode
S <sub>E</sub>	substitution electrophilic
SEFT	spin-echo Fourier transform
SEM	scanning [reflection] electron microscopy
SEP	stimulated emission pumping
SERS	surface-enhanced Raman spectroscopy
SESCA	scanning electron spectroscopy for chemical applications
SEXAFS	surface extended X-ray absorption fine structure
SF	spontaneous fission
SHE	standard hydrogen electrode
SI	le système international d'unités
SIMS	secondary ion mass spectroscopy
S <sub>N</sub> 1	substitution nucleophilic unimolecular
S <sub>N</sub> 2	substitution nucleophilic bimolecular
S <sub>N</sub> i	substitution nucleophilic intramolecular
SRS	synchrotron radiation source

STEM	scanning transmission [electron] microscopy
STM	scanning tunnelling (electron) microscopy
STP	standard temperature and pressure
T	triplet
TCC	thermal conductivity cell
TCD	thermal conductivity detector
TCF	time correlation function
TDMS	tandem quadrupole mass spectroscopy
TDS	thermal desorption spectroscopy
TEM	transmission electron microscopy
TG	thermogravimetry
TGA	thermogravimetric analysis
tlc	thin layer chromatography
TOF	time-of-flight [analysis]
TPD	temperature programmed desorption
TR <sup>3</sup>	time-resolved resonance Raman scattering
TST	transition state theory
UHF	ultra high frequency
UHV	ultra high vacuum
UPES	ultraviolet photoelectron spectroscopy
UPS	ultraviolet photoelectron spectroscopy
UV	ultraviolet
VB	valence bond
VCD	vibrational circular dichroism
VEELS	vibrational electron energy-loss spectroscopy
VHF	very high frequency
VIS	visible
VLSI	very large scale integration
VPC	vapour-phase chromatography
VUV	vacuum ultraviolet
X	halogen
XANES	X-ray absorption near-edge structure [spectroscopy]
XAPS	X-ray appearance potential spectroscopy
XPD	X-ray photoelectron diffraction
XPES	X-ray photoelectron spectroscopy
XPS	X-ray photoelectron spectroscopy
XRD	X-ray diffraction
Y-AG	yttrium aluminium garnet
ZPE	zero point energy