

## Abbreviations

AMP	Atomic and molecular physics
amu	Atomic mass unit
AO	Atomic orbitals
Ar	Argon
a.u.	Atomic unit
BE	Binding energy
BO	Born-Oppenheimer
C	Carbon
CCD	charged couple device
CEM	Channel electron multiplier
CFD	Constant fraction discriminator
CI	Capture ionization
CO	Carbon monoxide
COB	Coulomb over the barrier
CMA	Cylindrical mirror analyzer
CMOS	Complementary metal-oxide-semiconductor
CRT	Cathode ray tube
CSA	Cylindrical sector analyzer
DAQ	Data acquisition
DFT	Density functional theory
DIB	Diffuse interstellar band
DLA	Delay line anode
DLD	Delay line anode detector
DNA	Deoxyribonucleic acid
EA	Electron affinity
EC	Electron capture
ECR	Electron cyclotron resonance
EE	Electron emission
EELS	Electron energy loss spectroscopy
ESI	Electrospray Ionization
eV	Electron Volt
FC	Franck-Condon
FEL	Free electron laser
FFT	Fast Fourier Transform
FUV	Far ultra violet
GTF	Gaussian type function
H	Hydrogen atom

He	Helium atom
HDA	Hemispherical deflection analyzer
HF	Hartree-Fock
HOMA	Harmonic Oscillator Model of Aromaticity
HOMO	Highest occupied molecular orbital
HT	Herzberg-Teller
IR	Infrared
ISM	Interstellar medium
IVR	Intravibronic rotational
KER	Kinetic energy release
LCAO	Linear combination of atomic orbital
LDA	Local (electron) Density Approximation
LUMO	Lowest occupied molecular orbital
MC	Monte Carlo
MCP	Microchannel plate
meV	Milli-electron Volt
MO	Molecular orbital
MOSFET	Metal oxide semiconductor field effect transistor
MR	Membered ring
Ne	Neon
NIM	Nuclear Instrumentation Module
OVGF	Outer valence Green's function
PAH	Polycyclic aromatic hydrocarbon
PANH	Polycyclic aromatic nitrogen heterocycle
PE	Photoelectron
PEPICO	Photoelectron-photoion coincidence
PES	Photoelectron spectroscopy
PIMS	Photoionization mass spectrometry
PPA	Parallel plate analyzer
RF	Radio frequency
RPEA	Retarding potential analyzer
PSD	Position sensitive detector
RFA	Retarding Field Analyzer
RNA	Ribonucleic acid
SCF	Self consistent field
TDC	Time-to-digital converter
TD-DFT	Time-dependent density functional theory
ToF	Time-of-Flight
ToFMS	Time-of-flight mass spectrometer
TPES	Threshold photoelectron spectroscopy
TPEPICO	Threshold photoelectron-photoion coincidence
TTL	Time-to-time logic
UV	Ultraviolet
V	Volt
Xe	Xenon