UNIVERSITÀ DEGLI STUDI DI MILANO-BICOCCA
Dipartimento di Scienza dei Materiali
Department of Materials Science
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PRICE LIST

(approved by Advisory Board on 2025/06/17)

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Item	Test description	u.m.	Total (excl. VAT)
A.1	Thermoluminescence authentication. Cost per measurement.	€/each	€ 225.00
A.2	Thermoluminescence dating. Cost per measurement.	€/each	€ 1.100.00
A.3	Optically Stimulated Emission dating. Cost per measurement.	€/each	€ 860.00
A.4	Radiocarbon dating. Cost per measurement.	€/each	€ 480.00
A.5	Dendrochronology (dating). Cost per measurement.	€/each	€ 156.00
A.6	Elemental analysis (C, H, N, S). Cost per measurement.	€/each	€ 38.50
A.7	Rehydroxylation dating. Cost per measurement.	€/each	€ 1.100.00
A.8	Gravimetric Analysis for the determination of water content. Cost per measurement.	€/each	€ 852.00
A.9	Sampling. Cost per hour.	€/hour	€ 50.00
B.1	Optometric analysis. Cost per measurement	€/each	€ 50.00
B.2	Measurement of the friction coefficient (normal force <10 mN, sliding velocity < 1 mm/s, path length < 5 mm) on samples with plane or spherical surface (e.g. soft contact lenses), also exposed to a liquid if necessary	€/sample	€ 265.00
C.1	Resistivity and Mobility measurement. Cost per sample.	€/sample	€ 102.00
C.2	Resistivity and Mobility measurement at Low Temperature. Cost per sample.	€/sample	€ 202.00
C.3	Thin Film Deposition (max 5x5 cm^2). Cost per deposition.	€/each	€ 213.00
C.4	FTIR Spectroscopy at low temperature. Cost per sample.	€/sample	€ 201.00
C.5	FTIR Spectroscopy. Cost per sample.	€/sample	€ 141.50
C.6	UV-VIS and IR Photoluminescence. Cost per sample.	€/sample	€ 277.00
C.7	UV-VIS and IR Photoluminescence at low temperature. Cost per sample.	€/sample	€ 323.00

D.2	NMR Spectroscopy in liquid solution. Cost per hour.	€/hour	€	192.00
D.3	FTIR-ATR Spectroscopy (liquid and solid samples). Cost per hour.	€/hour	€	148.00
D.4	Basic sample preparation and/or formulation (i.e. milling, homogenisation, distillation, extraction)	€/sample	€	100.00
D.5	Multistep sample preparation and/or formulation (i.e. any complex operation requiring a combination of steps and more than 1 working day)	€/sample	€	200.00
D7	DLS analysis (dynamic light scattering for the determination of hydrodynamic diameter of nanoparticles in dispersion)	€/sample	€	100.00
E.1	Optical Microscopy Imaging (transmission or reflection configuration). Cost per hour.	€/hour	€	120.00
E.2	Hot-Stage Optical Microscopy Imaging (transmission or reflection configuration). Temperature: -190°C ÷ 600°C. Cost per hour.	€/hour	€	150.00
E.3	Single Crystal X-Ray Diffraction. Room temperature. Cost per hour.	€/hour	€	75.00
E.4	Single Crystal X-Ray Diffraction. Variable Temperature 80 K ÷ 490 K. Cost per hour.	€/hour	€	100.00
F.1	Fabrication of DSC cells < 0.20 cm^2 for component evaluation (1 dye + 1 electrolyte) (10 DSC cells)	€/each	€	860.00
F.2	Fabrication of DSC cells < 0.20 cm^2 for component evaluation (1 dye + 5 electrolytes) (25 DSC cells)	€/each	€	1.370.00
F.3	I/V characteristics (current, voltage, maximum power, total efficiency). Cost per hour.	€/hour	€	246.00
F.4	External Quantum Efficiency measurements. (EQE or IPCE). Spectral response. Cost per hour.	€/hour	€	284.50
F.5	Internal Quantum Efficiency measurements. (IQE or APCE). Spectral response. Cost per hour.	€/hour	€	295.50
F.6	Absorption spectrum of dye sensitized TiO_2 photoanodes (5 DSC Cells - 1 dye)	€/each	€	421.50
F.7	Absorption spectrum of dye sensitized TiO_2 photoanodes (15 DSC Cells - 3 dyes)	€/each	€	941.50
F.8	DSC Logo - custom made image (12 logos - 5x5 cm^2)	€/each	€	2.606.00
F.9	Laser cutting. Cost per sample	€/sample	€	246.00
F.10	TiO2 Coating 10x10 cm^2	€/each	€	541.00
F.11	TiO2 Coating 10x10 cm^2 (custom made image)	€/each	€	1.108.00
F.12	Electrochemical Impedance Spectroscopy (EIS) (1 PV cell)	€/each	€	114.00
F.13	Triple Micro-Raman Spectroscopy. Cost per 0.5 day (technical assistance included).	€/each	€	266.00
F.14	Triple Micro-Raman Spectroscopy, deep-UV excitation. Cost per 0.5 day (technical assistance included).	€/each	€	462.00
F.15	Thickness determination of thin-film samples by means of a profilometer	€/hour	€	140.00
F.16	Metal coating by evaporation (gold, aluminum, silver), excluding the cost of the metal, also in glove-box	€/exp	€	114.00
F.17	Conductive oxides (AZO) and molybdenum thin film deposition by sputtering up to 10x10 cm^2	€/sample	€	150.00
F.18	Anions or cations determination in aqueous solutions by ionic chromatography	€/sample	€	60.00
F.19	Photocatalytic activity measurement in solution (with products determination)	/analysis (6	€	400.00
F.20	Photoelectrochemical measurement for water splitting (with products determination)	€/hour	€	150.00
F.21	Deposition of thin films (< 100nm) of oxides or nitrides (TiO_2, Al_2O_3, HfO_2, TiN, ZnO, SnO_2) of non-precious metals by Atomic Layer Deposition (ALD) thermal or plasma-assisted on 4" substrates.	€/hour	€	450.00
F.22	Deposition of thin films (< 100nm) of oxides of precious metals (IrO_2) by Atomic Layer Deposition (ALD) plasma-assisted on 4" substrates.	€/hour	€	900.00

G.1	Anions or cations determination in aqueous solutions by ionic chromatography	€/sample	€	60.00
G.2	Acquisition of single High-resolution mass spectra with Dual ESI / TOF - direct injection	€/sample	€	300.00
G.3	Separation of mixtures by HPLC (direct and reversed phase), UV-Vis detector	€/h	€	120.00
G.4	Separation method development of mixtures by HPLC (direct and reversed phase) using UV-Vis detector	€/h	€	500.00
G.5	Separation of mixtures by HPLC (forward and reverse phases), UV-Vis detector and HRMS with Dual ESI/TOF (chromatogram acquisition) for subsequent mass analysis (ref. AD.2 for single component)	€/h	€	300.00
H.1	Thermogravimetric Analysis (TGA). Cost per sample.	€/sample	€	140.00
H.2	Thermogravimetric Analysis coupled to Infrared Spectroscopy (TGA/FTIR). Determination of the composition of the gaseous reaction products. Cost per sample.	€/sample	€	210.00
H.3	Electron Spin Resonance. Cost per sample.	€/sample	€	210.00
H.4	FTIR-ATR Spectroscopy (liquid and solid samples). Cost per hour.	€/hour	€	148.00
I.1	Atomic Force Microscopy (AFM) - µm-resolution images. Scans on two different regions and on two areas per region, with size between 3×3 and 100×100 µm2. Cost per sample.	€/sample	€	330.00
I.2	Atomic Force Microscopy (AFM) - nm-resolution images. Scans on one single region. Cost per sample.	€/sample	€	440.00
I.3	Spectroscopic ellipsometry measurements on isotropic samples - thickness and refractive index in a spectral range selected between 190 and 1700 nm. Cost per sample.	€/sample	€	1.800.00
I.4	Spectroscopic ellipsometry measurements on isotropic samples - thickness and refractive index in a spectral range selected between 190 and 1700 nm, obtained using a model optimized for a first sample (applicable on samples out of a series).	€/sample	€	250.00
I.5	UV-vis-NIR transmission spectroscopy. Cost per sample (n samples ≤5)	€/sample	€	180.00
I.6	UV-vis-NIR transmission spectroscopy. Cost per sample (n samples >5)	€/sample	€	140.00
I.7	UV-vis-NIR near-normal incidence reflectance spectroscopy. Cost per sample (n samples ≤5)	€/sample	€	270.00
I.8	UV-vis-NIR near-normal incidence reflectance spectroscopy. Cost per sample (n samples >5)	€/sample	€	200.00
I.9	UV-vis-NIR transmission or reflection spectroscopy with integrating sphere detector (diam 10 nm). Cost per sample (n samples ≤5)	€/sample	€	200.00
I.10	UV-vis-NIR transmission or reflection spectroscopy with integrating sphere detector (diam 10 nm). Cost per sample (n samples >5)	€/sample	€	150.00
I.11	Knudsen cell calibration for thin film deposition of organic semiconductors.	€/each	€	3.000.00
I.12	Thin film deposition of organic semiconductors (nominal thickness from 0,5 to 20 nm). Cost per hour	€/hour	€	90.00
J.1	DSC for polymer analysis (3 runs). Cost per measurement.	€/each	€	160.00
J.2	Time-Domain NMR analysis (TD-NMR). a) Determination of the proton content, b) determination of the rigid fraction in polymers (evaluation of the crystallinity). Single temperature experiment. Cost per measurement.	€/each	€	55.00
J.3	Time-Domain NMR analysis (TD-NMR). Determination of the relaxation time T2 or T1 for the study of the crosslink density and homogeneity in elastomers. Single temperature experiment. Cost per measurement.	€/each	€	100.00
J.4	Time-Domain NMR analysis (TD-NMR). Multiple Quantum Coherence Measurement for the study of crosslink density and homogeneity in elastomers. Single temperature experiment. Cost per measurement.	€/each	€	240.00
J.5	Mechanical measurements of plastics and elastomers by means of Zwick dynamometer in traction or compression: determination of the elastic modulus, load at break, deformation at break. Minimum five specimens	€/sample	€	250.00
J.6	Dynamic Mechanical Analysis (DMA) of plastics and elastomers: single frequency analysis, determination of storage modulus, loss modulus and tand.	€/sample	€	300.00
J.7	Gel Permeation Chromatography for the determination of polymer molecular weight.	€/sample	€	100.00
J.8	Evaluation of elastic and viscous modulus, tan delta and other rheological parameters on polymer melts, viscous liquids and gels	€/camp	€	200.00

K.1	Optically Detected Magnetic Resonance (ODMR)Spectroscopy	€/sample	€	150.00
L.1	Non-invasive EDXRF Analysis. Cost per sample	€/sample	€	200.00
L.2	MICRO-RAMAN Spectroscopy. Half day cost (technical assistance included)	€/each	€	250.00
L.3	MICRO-FTIR Spectroscopy. Half day cost (technical assistance included)	€/each	€	280.00
L.4	Refractometry. Half day cost (technical assistance included)	€/each	€	250.00
L.5	Time-resolved photoluminescence. Half day cost (technical assistance included)	€/each	€	330.00
L.6	Electron Impedance Spectroscopy/Dielectric costant determination. Half day cost (technical assistance included)	€/each	€	200.00
L.7	UV-VIS-NIR Spectroscopy coupled to Integrating Sphere. Half day cost	€/each	€	260.00
L.8	Wavelength resolved thermoluminescence (cost per day with assistance by personnel)	€/each	€	330.00
L.9	X-ray induced luminescence (cost per day with assistance by personnel)	€/each	€	330.00
L.10	UV-vis emisison spectral profile. Cost per sample	€/sample	€	100.00
L.11	UV-Vis wavelength resolved emission and excitation spectra. Cost per day (technical assistance included)	€/each	€	330.00
L.12	Raman spectroscopy with portable instrument. Cost per half a day (technical assistance included)	€/each	€	250.00
L.13	Time and/or wavelength resolved photoluminescence with excitation at 260 nm, 350nm, 405 nm, or 510 nm	€/hour	€	225.00
L.14	Time and/or wavelength resolved radioluminescence	€/hour	€	450.00
L.15	Time and/or wavelength resolved photoluminescence excited by UV/Vis flashlamp	€/hour	€	330.00
L.16	Co-registered MA-XRF mapping and VNIR-SWIR hyperspectral imaging	€/hour	€	400.00
M.1	UV/vis/IR Microluminescence. Cost per sample.	€/sample	€	275.00
M.2	Time-resolved photoluminescence measurements using a superconducting nanowire single photon detector.	€/day	€	500.00
N.1	Solid State NMR Spectroscopy. Cost per hour.	€/hour	€	290.00
O.1	Static contact angle measurement (from 1 to 10 samples)	€/sample	€	70.00
O.2	Static contact angle measurement (11th sample and up)	€/sample	€	60.00
O.3	Advancing and receding contact angle measurement (from 1 to 10 samples)	€/sample	€	150.00
O.4	Advancing and receding contact angle measurement (11th sample and up)	€/sample	€	130.00
O.5	Testing with high-speed camera (1 day, with operator)	€/day	€	1.150.00
P.1	Laser Ablation ICP Mass Spectrometry. Half day cost	€/each	€	506.00
Q.1	X-Ray Diffraction Analysis of Microcrystalline Powders under ambient conditions	€/each	€	250.00
Q.2	X-Ray Diffraction Analysis of Microcrystalline Powders NOT under ambient conditions	€/hour	€	200.00
Q.3	Analysis of X-ray diffraction data by Rietveld refinement for quantification of crystalline phases	€/cad	€	250.00
Q.4	Analysis of X-ray diffraction data by Rietveld refinement for structural determination	€/ora	€	180.00
Q.5	Analysis of X-ray diffraction data by Rietveld refinement and database research of unknown phases	€/ora	€	200.00

R.1	Determination of CO_2 interaction energy in porous materials	€/hour	€	250.00
R.2	Selective separation of CO_2/N_2 mixtures in porous materials	€/hour	€	220.00
S.1	Instrumentation for the emission of infrared laser light femtoseconds pulses (wavelength = 1030 nm) at high power (10 W) and high repetition rate (600 kHz)	€/hour	€	130.00
T.1	Microscopic imaging of solid samples at room temperature via the acquisition of secondary electrons and backscattered electrons	€/hour	€	90.00
T.2	Diffraction pattern acquisition for powder sample with preparation by manual grinding	€/sample	€	150.00
T.3	Sample preparation by ball milling grinding	€/sample	€	50.00
T.4	XRD data analysis (data base search&match) for identification of crystalline phases for samples with known chemical composition (up to 5 phases)	€/sample	€	100.00
T.5	XRD data analysis (Rietveld refinement) for quantification of crystalline phases (up to 5 phases)	€/sample	€	250.00
T.6	XRD data analysis (Rietveld refinement) for structural determination (up to 3 phases)	€/hour	€	150.00
T.7	XRD data analysis (Rietveld refinement/database research) for complex samples	€/hour	€	150.00
U.1	Thin film deposition of nitride semiconductors: GaN, AlGaN, InGaN, InN. Nominal thickness from 10 to 3000 nm	€/sample	€	3.000.00
U.2	Deposition of nitride semiconductors heterostructures: GaN, AlGaN, InGaN, InN. Maximum thickness 2000 nm	€/sample	€	3.000.00
U.3	Atomic Force Microscopy (AFM) - µm-resolution images. Cost per image.	€/scan	€	150.00
V.1	Test of fuel cell on laboratory scale	€/hour	€	150.00
W.1	Elemental analysis	€/hour	€	150.00
W.2	Rheology	€/hour	€	150.00
W.3	Dynamic mechanical analysis	€/hour	€	150.00
X.1	Time-resolved luminescence measurements with temporal resolution up to 2 ps. Cost per half day of use.	€/each	€	500.00
X.2	Transient optical absorption measurements with sub-ps time resolution.	€/sample	€	300.00
X.3	Cryostat for measurements at high magnetic field (max 5 T) in the temperature 2-300 K with optical accesses. It can be used by installing own excitation/revelation systems or by agreeing to use set-ups in the laboratory. Cost referred to use of magnet only. Cost per day of use.	€/each	€	1.000.00
Y.1	Quatum chemical simulations	€/hour	€	250.00
Y.2	Molecular dynamics simulations	€/hour	€	80.00
Z.1	Request analysis and feasibility study. Full Professor. Cost per hour	€/hour	€	200.00
Z.2	Request analysis and feasibility study. Associate Professor. Cost per hour	€/hour	€	150.00
Z.3	Request analysis and feasibility study. Assistant Professor. Cost per hour	€/hour	€	100.00
Z.4	Request analysis and feasibility study. Technician. Cost per hour	€/hour	€	70.00
ZZ.1	Interpretation of data and/or of results of the analysis included in the price list. Full Professor. Cost per hour	€/hour	€	200.00
ZZ.2	Interpretation of data and/or of results of the analysis included in the price list. Associate Professor. Cost per hour	€/hour	€	150.00
ZZ.3	Interpretation of data and/or of results of the analysis included in the price list. Assistant Professor. Cost per hour	€/hour	€	100.00
ZZ.4	Interpretation of data and/or of results of the analysis included in the price list. Technician. Cost per hour	€/hour	€	70.00