

**Detailed information regarding
the acquired equipment and its use**

i. The project through which they were acquired: 70 CPI (PROLIFT)

ii. Main characteristics of the acquired equipment:

Equipment name	Main technical specifications for the equipment	Inventory value	Equipment acquisition information
ArF excimer laser	Wavelength: 193 nm Maximum energy per pulse: 400 mJ Average power: 15 W Pulse repetition rate: 20 Hz Pulse duration: 25 ns Energy stability: 1% Laser beam transverse cross-section: 24 x 10 mm Beam divergence: 3 x 1 mrad	367.407,15 lei	Auction SC APEL LASER SRL CUI RO15595373 Contract no. 6/25.03.2008
Excimer laser accessories	Dichroic mirrors for 193 nm	5.862,99 lei, of which 5.678,102 lei from 70 CPI	Direct purchase from OPTOLITA UAB LT100002802516
Atomic force microscope accessories - AFM liquid probe hand	Liquid probe hand for scanning in liquid environment, allowing the study of biological samples Maximum area: 50 x 50 sq. microns Maximum vertical displacement: 12 microns	13.220,7 lei, of which 9.932,593 lei from 70 CPI	Direct purchase, according to the justificatory note attached in Stage 2 SCHAEFER Fiscal code: IT 03586750279
Secondary ion mass spectroscopy system (SIMS)	Positive ion SIMS, negative ions SIMS, and the possibility of SNMS analysis Ion production and post ionization, in the case of the SNMS module Detection limit equal to or below 1 ppm Lowest mass detection threshold 0 - 300 amu Depth profile with a resolution of approximately 1 - 5 nm Energy analysis in a 45° angular range Quadrupole mass spectrometer	1.062.012 lei	Auction HIDEN ANALYTICAL CUI: 1596907 Contract no. 35/21.11.2008

	High current density (up to 1 mA)		
Mass spectrometer	<p>System optimized for maximum performance in the mass range 1 - 300 amu</p> <p>Triple filter quadrupole mass analyzer</p> <p>Sensitivity higher than 1 ppm</p> <p>Detector dynamic range 1:10⁷ c/s, 24-bit resolution</p> <p>Calibration pressure up to 2 mbar</p> <p>Minimum degassing temperature 250° C</p> <p>Screening for RF plasma analysis (13.56 MHz)</p> <p>Ecranare pentru investigarea plasmelor RF (13.56 MHz)</p>	147.875 EURO of which 234.970,155 lei from 70 CPI	<p>Auction</p> <p>HIDEN</p> <p>ANALYTICAL</p> <p>CUI: 1596907</p> <p>Contract no. 32/22.09.2008</p>
Matrix Assisted Pulsed Laser Evaporation (MAPLE) system	<p>Neocera Pioneer laser deposition system for the growth of polymers and organic materials in the form of thin films:</p> <ul style="list-style-type: none"> - spherical vacuum chamber with 12" diameter - includes laser access window at a 45 degree angle of incidence - liquid nitrogen cooled target holder - room temperature substrate holder allowing the positioning of 4 substrates - electrical distribution and interconnectors 	99,385 USD, of which: 173.850 lei from 70 CPI	<p>Offer request</p> <p>CMS Messysteme GmbH</p> <p>CUI HRB 16765</p> <p>Contract no. 2/01.09.2009</p>
Computers – 2 pcs.	FSC ESPRIMO Edition P2530 system	5.000 lei	<p>Direct purchase</p> <p>ARALIS</p> <p>CONSULTING</p> <p>CIF: RO15547988</p>

iii. People in charge with the equipment, and their contact email address:

Contact person responsible for the group:

Dr. Maria Dinescu (CS I)
email: dinescum@nipne.ro
Tel: 021 - 457.44.14

Equipment	Person(s) in charge	Contact (email)
SIMS	Dr. Scarisoreanu Nicu Drd. Colceag Dan	snae@nipne.ro colceag@nipne.ro
ArF laser	Dr. Scarisoreanu Nicu Drd. Colceag Dan Dr. Epurescu George Drd. Filipescu Mihaela	snae@nipne.ro colceag@nipne.ro george@nipne.ro morarm@nipne.ro
AFM	Drd. Moldovan Antoniu Chis Andreea	moldovan@nipne.ro andreea.chis@inflpr.ro
Mass spectrometer	Dr. Mitu Bogdana	mitub@infim.ro
MAPLE	Dr. Matei Andreea Drd. Palla-Papavlu Alexandra	andreeapurice@nipne.ro apalla@nipne.ro

iv. Access conditions for third parties

- Third parties have access to the above described installations as long as the Photonic Processing of Advanced Materials group has an ongoing scientific collaboration with the groups/institutes which they belong to.
- The access to these installations is free of charge and it is based on the scientific collaboration between the groups, aimed at the publication of ISI rated journals and the development of patents.
- The technical datasheets and the instructions manuals for the equipment is always made available to the person(s) using the installation.
- Installations access schedule: daily (Monday - Friday) between 10 and 18 hours.

ST services offered by the new laboratory / installation

Equipment	Analysis / experiments
AFM	Topographic analysis of the surfaces of various samples (thin films, bulk materials, biological samples etc.)
SIMS	Material composition analysis
Mass spectrometer	Mass spectrometry in plasma
ArF laser	Irradiation of various materials for deposition experiments of organic and inorganic materials by pulsed laser ablation (PLD) and matrix assisted pulsed laser evaporation (MAPLE)
MAPLE	Realization of thin films (polymeric or biological materials)

The quality of the ST services provided by the new laboratory / installation

1. Performance indicators of the laboratory / installation:

*See the Table at point **ii.**, column 2 (Main technical specification for the equipment)*

2. Personnel quality:

*The people in charge with the upkeep and the utilization of the equipment described in the Table at point **iii.** have a high scientific qualification, trained by the supplier during the installation of the equipment in the laboratory.*

3. Working procedures:

Equipment	Working procedure
AFM	Determination of surface topography by measuring the forces of interaction between a very sharp tip and the surface of the studied medium. The respective tip, found at the end of a flexible cantilever, is brought in the proximity of the surface, and the vertical deflection of the cantilever due to the interaction forces between the tip and the surface is recorded.
SIMS	Determination of sample composition through mass spectroscopy of secondary ions resulting from ion beam bombardment
Mass spectrometer	Mass spectrometry of species in various types of plasma
ArF laser	Irradiation and processing of materials using a laser radiation having a wavelength of 193 nm
MAPLE	Realization using a laser source of polymeric and biological structures in controlled atmosphere by material transfer from a matrix containing the material to be deposited dissolved in a solvent. The mixture is solidified in liquid nitrogen flow.

Network of known beneficiaries (including eventual partners)

- National Institute for Material Physics (INCDFM)
- National Institute for Physics and Nuclear Engineering - Horia Hulubei (IFIN-HH)
- Carol Davila Medicine University, Bucharest
- Bucharest Biology Institute - The Romanian Academy