

OPTICAL TWEEZERS Laboratory

OPERATING INSTRUCTIONS

This document defines the rules and safety procedures for the access to this laboratory and the usage of equipments here available.

LABORATORY LOCATION:

UniMoRe FIM Dept., Physics Building, Ground Floor, Room MO-17-00-047

RESPONSIBILITY

- R.S.P.P. CNR – Istituto Nanoscienze : Dr. Milena Toselli
- Laboratory Responsible (Preposto): Dr. Ciro Cecconi.

ACCESS RULES

Two categories of people can access the laboratory:

- GUEST
- USER

GUEST is not allowed to operate on the equipments and must always be guided by authorized personnel (**USER**). **GUEST** has to respect the general safety and conduct rules of the Lab as presented in this Manual (pag. 2).

USER may operate on the equipments. **USER** could be a CNR employee, a collaborator with fixed-term contracts, a CNR associated, or a PhD student who has completed the “General Training Course on Prevention and Safety at Work”. In special cases, **USERS** could be requested to complete the training modules about specific hazards (chemical, biological).

USER permission is granted by the Responsible of the Laboratory who evaluates the applicant’s background knowledge and organizes a specific training about the safety procedures and the working methods to adopt with the equipment and/or the substances in the Laboratory.

USERS and **GUESTS** may ask the **Workers Health and Safety Representative (RLS)**, Dr. Andrea Bertoni, for assistance in case they perceive any hazard-related issue not properly managed by the Laboratory Responsible.

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GENERAL SAFETY AND CONDUCT RULES

USERS and *GUESTS* must comply with the following general rules of prevention and security. Please note that non-observance of safety regulations involves, in addition to the penalties of law, taking disciplinary action against the defaulters.

IT IS IMPORTANT

- To memorize the location of access and exit ways
- To check the safety signs
- To locate the first aid box and the placement of individual (DPI) and collective (DPC) safety devices
- To locate the containers for waste disposal
- To promptly inform the Responsible of the Laboratory of any irregular situation in the operation of the instruments
- To collaborate with the Responsible of the Laboratory and with other users, in order to maintain the efficiency of the security system

IT IS MANDATORY

- To carefully read the machine handbook and to strictly follow the given specific rules.
- Before using any chemicals, to acquire information about their characteristics by way of safety data sheets, risk phrases and safety advice, and to follow instructions for their handling, storage and disposal.
- To keep electrical equipments as far away as possible from sources of moisture and/or flammable solvent vapors
- To always use protection devices (DPI and DPC) as indicated by the procedures. Keep them carefully, do not damage or remove them
- To dispose of all processing waste in dedicated containers
- To observe the existing prevention and safety laboratory regulations, and to closely follow the provisions issued by the Responsible
- In case of alarm, to leave the laboratory according to the evacuation procedures envisaged in case of emergency

IT IS FORBIDDEN

- To work alone in the lab, especially beyond the standard working hours
- To take and preserve food and drink inside the laboratory
- To use electrical equipment not compliant with CE regulation
- To carry out operations for which one has not been authorized and/or trained by the Responsible of the laboratory

RULES FOR THE PECULIAR USAGE OF INSTRUMENTS IN THE LABORATORY

List of main equipments present in the Laboratory:

- 1) Optical Tweezers Setup (custom-built instrument)
- 2) Engraver Epilog MINI 18

Optical Tweezers Setup

This instrument works with two counter-propagating lasers having the following properties:

Laser type	Diode
Max power	150 mW
Wavelength	840-860 nm
Classification	Class 3B
Operation mode	Continuous mode

Before using the Optical tweezers setup switch on the red light located outside the main entrance of room MO-17-00-047. To switch on and off the Optical tweezers setup use the black switch located on the back of the instrument.

The Operator of the Optical Tweezers set-up must:

- Follow the instructions received by the Head of the Optical Tweezers Laboratory during the training period.
- Wear Laser Safety Glasses.
- Not observe the laser beam through optical fibers or collecting systems (microscopes, etc..) without authorization, and never directly observe the beam even if wearing Laser Safety Glasses.
- Avoid creating the conditions to produce accidental and/or uncontrolled reflections.
- Do not remove or modify the protective devices.

Engraver Epilog MINI 18

To switch on and off the Engraver Epilog MINI 18 use the black switch located on the back of the instrument.

The Operator of the Engraver Epilog MINI 18 must follow the instructions received by the Head of the Optical Tweezers Laboratory during the training period.

For any details about using Engraver Epilog MINI 18 please refer to the manual located in the cabinet of room MO-17-00-047.

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PROTECTION DEVICES IN THE LABORATORY

Laser Safety Glasses, Thorlabs LG9, 2 units, located in the cabinet of room MO-17-00-047.
Specification sheets for these glasses can be found in the same cabinet.

EVACUATION PROCEDURES IN THE EVENT OF AN EMERGENCY

In case of emergency and warning, users and/or guests attending the laboratories must respect the following procedures:

1. Proceed in an orderly way in order to leave the building by following the shortest route indicated by relevant signs, and gather at the meeting point
2. Do not use elevators
3. Only if the situation allows it, before walking away and in the shortest time possible, safely store any materials and equipments.
4. Do not perform any operation for which they have not been previously trained.