

Health and Safety Information for Quantum Optospintronics Laboratory: Code of Practice and Risk Assessments

Location: Rankine Building Room 222C

Version: 20/02/2023

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All laboratory users must read this document in full and sign off before commencing work.

Code of practice

Adoption and practice of good safety procedures is essential for both the health and safety of all, and for the integrity and success of the Quantum Optospintronics Laboratory.

Lab safety management responsibilities

- Everyone has a role in protecting the health and of safety of other lab users and themselves, and should therefore be familiar with the School Safety Manual: <https://www.gla.ac.uk/schools/engineering/informationforstaff/safety/>
- Academic supervisors take responsibility for the health and safety of the research group's activities and consequently must ensure that staff, students, and visitors are familiar with the content of this Code of Practice, Risk Assessments, and the School Safety Manual, and apply its requirements.
- No research activities shall be carried out in the Rankine Building Lab 222C without the permission of Dr. Sam Bayliss, the Lab Guardian.
- No work will be carried out unless it is covered by a Risk Assessment in the section below on this form. New activities should be discussed with the supervisor, lab guardian and School Director of Safety. The Risk Assessment section below should be updated accordingly after approval.
- An electronic copy of the current Code of Practice and Risk Assessment shall be sent to the Lab Responsible Person and shared with the School Director of Safety (Cyril Pacot). A printed copy of the current Code of Practice and Risk Assessment, signed and dated (electronically or physically) by all current users (see below) will be displayed in the lab.
- All lab users must familiarize themselves with the general safety procedures highlighted in the School's Safety Manual and location of safety equipment in the lab. In summary:
 - In case of emergency, dial telephone number 4444 (internal), 0141 330 4444 (external).
 - To exit the Rankine building use the main stairwells (not lifts). There are emergency exits on levels 2, 3 and 4 to the back of the Rankine Building.
 - Fire Extinguishers are located in the main stairwells and corridors on levels 2.
 - First Aid Kits are available in the janitor's office on level 4.
- Work outside of normal office hours (8 am-5 pm) and weekend working requires permission of your supervisor. The out of hours working book located in the lobby of the Rankine building must be signed for out of hours work, noting your name, location, time in and time out. Potentially dangerous operations must never be undertaken outwith normal hours unless a second responsible person is present (please refer to the School's safety Manual). Do not work in the building alone.
- Guidance for health and safety for any users that are pregnant can be found at: <https://www.gla.ac.uk/schools/engineering/informationforstaff/safety/>

Best practice in the laboratory

- The lab must be kept tidy.
- No food or drink to be brought into the lab.
- Safety equipment provided will be used appropriately.
- Wash your hands after working in the lab prior to eating/drinking.

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- First Aid Kits are available in the janitor's office on level 4. All users should be aware of the qualified building first aiders (notices with their names and contact details are beside the lift entrances at each level).
- Use equipment in accordance with the manufacturer's instructions.
- Inventories of equipment and specific lab procedures are detailed on the Group Wiki and shared drive.
- Avoid trailing cables and fibres across the lab.
- Consider your own safety and that of other lab users when operating lasers.
- Do not stack equipment; use racks and shelves appropriately.
- Report any faulty equipment to the Lab Guardian, Dr. Sam Bayliss, and co-workers.
- A fault with the fabric of the room, such as a lighting failure, should be reported through the Maintenance Request portal found on the Estates and Commercial Services webpage, <http://www.gla.ac.uk/services/estates/>
- The main door and the doors within the laboratory should be kept shut if not in use, for fire safety, security, and noise reduction.
- Keep access to doorways and pathways to exits clear of equipment and obstructions.
- Dispose of packaging materials and empty the bins regularly. A dongle for the back door Level 2 to access the main recycling bins can be obtained from the Janitors on Level 4 (so that you don't set off the door alarm).
- Store chemicals and solvents in the containers provided. Waste chemical collection should be arranged as required.
- Good communication with other group members is essential for health and safety including in-person, via email or Teams.

Risk assessments and potential hazards

Risk assessments are generated, and signed off using the online portal at <https://risks.eng.gla.ac.uk>. A risk assessment must be completed and signed off before starting work.

Lasers

See details in the separate risk assessments for:

- Laser alignment: <https://risks.eng.gla.ac.uk/form/3204>

Fibre inspection scope

See details in the separate risk assessments for:

- Use of fibre inspection scope: <https://risks.eng.gla.ac.uk/form/3235>

Liquid nitrogen

See details in the separate risk assessments for:

- Use of liquid nitrogen: <https://risks.eng.gla.ac.uk/form/3205>

Molecular dyes

Small quantities (<1 g) of:

- Pentacene-doped p-terphenyl

Potential risks:

- Toxic;
- Irritant.

Control measures:

- Wear gloves and eye protection when handling.
- Do not ingest.

- Avoid contact with skin.
- Avoid contamination in the lab e.g., with tweezers, tools.
- Dispose in chemical waste according to building procedures.

Nitrogen gas

A nitrogen gas cylinder is stored in the service corridor

Potential risks:

- Asphyxiation if large amount of gas released.
- High-pressure build up and explosion.

Control measures:

- All users should undertake the compressed gases safety training, and receive on-site training.
- Always close off the cylinder supply after use to reduce the possibility of leaks downstream.
- Do not move or disturb the cylinder: all cylinder changes will be carried out by Colin Robers.

Electrical apparatus (general guidelines)

Potential risks:

- Electric shock;
- Fire.

Control measures:

- Equipment is PAT tested.
- Equipment should generally not be opened. In cases where it is absolutely necessary disconnect power and mains plug before opening. For equipment which may have capacitors, ensure these are discharged before opening the equipment.
- Grounding strap/mat must be used when handling delicate electronics.
- Equipment must be kept off the floor to prevent issues if the laboratory floods.
- All wires should have electrically insulating coatings to prevent electric shocks. Where uninsulated wires or connectors have to be used, they should be covered with appropriate protective insulating covers to prevent any electrical shocks.
- Do not hold bare connectors or bare wires when there is a risk that they could be live and produce an electric shock or electrocution. If bare wires or connectors have to be touched then make sure they are earthed and without any electric charge before touching.

Batteries

Potential risks:

- Corrosion over time leading to failure resulting in release of toxic chemicals and damage to equipment.

Control measures:

- Check batteries regularly. Remove from equipment when not in use.
- Dispose of expired batteries according to building procedures (disposal on Level 7).

Signatures

Name (print)	Role	Signed	Date	Countersigned	Date
Dr. Sam Bayliss	Lab Guardian/Supervisor				

Dr. Sarah Mann	PDRA				
Angus Cowley-Semple	PGR				