

QuIN New LAB Member Guideline ver.1

Updated Dec. 2016 by Na Young Kim

Welcome to the QuIN-Lab, the Kim Group! The fun is just beginning!

1. The QuIN-LAB Nondisclosure Agreement and Conduct Agreement

Schedule a meeting with Prof. Na Young Kim regarding the Nondisclosure Agreement and Conduct Agreement Contract to complete the member join.

2. Getting access to the building and offices

Contact Chris Dietrich (RAC1-1101) for keys and a fob to the lab and offices (this gives you after-hours access to RAC1/QNC).

3. The QuIN-LAB Wiki

Talk to Prof. Kim about getting an account on the QuIN Wiki website:

<https://research.iqc.uwaterloo.ca/quinkim/quin-wiki/>

Weekly reports, Standard Operating Procedures, Instruction Documentations, Calendars of the Kim Group meetings and other activities will be shared privately among the QuIN Lab members.

4. The QuIN-LAB Meetings/Activities

If you cannot join any of meetings, a written notification with reason should be made to Prof. Kim by email prior to the meetings.

1) **Daily Meetings:** M-F 9:30am-10am @ RAC1-2004

- The time may be subject to change or cancel depending on the Prof. Kim's schedule. The change and/or cancellation will be notified to the Group members by at least 30 min. prior to the start.
- When Daily meeting is cancelled, the group members should write (1) the work summary of previous day (2) a daily plan and/or comments to Prof. Kim by 10:00 am by email.

2) **Weekly Group Meetings:** Mondays 10am-11:15am @ RAC1-2004

- One Research Talk highlighting group member's latest research progress (30 min Talk + 15 min Discussion)
- One Journal Club introducing a paper related to group member's research project (20 min Talk + 10 min Discussion)
- The time may be subject to change or cancel depending on the Prof. Kim's

schedule. The change and/or cancellation will be notified to the Group members by 1-hour prior to the start time.

- 3) **Weekly Individual Meeting:** 30 min-1 hour @ RAC1-2101
 - Sign-up an in-depth individual meeting with Prof. Kim.
- 4) **Weekly Lab Cleaning:**
 - Every Friday 10:00-11:00 am
 - Check-list
 - Lab Bench Cleaning
 - Floor Cleaning with Swifter/Vacuum Cleaning
 - Sticky Mats & Booty cover arrangement
 - Tool-box stock-up
- 5) **Monthly Lab Cleaning:**
 - Every month 4th or 5th Friday 10:00-11:45 am prior to RAC-seminar
 - All QuIN LAB members except one who does the lab safety inspection must participate in the Monthly Lab Cleaning
 - Lab Bench Cleaning
 - Floor cleaning: Blooming & Mopping
 - Sticky Mats& Booty cover box cleaning
 - Equipment arrangement/Inventory check
- 6) **Monthly Lab Safety Inspection:**
 - Every month 4th or 5th Friday 10:00-11:45 am prior to RAC-seminar
 - The safety inspection performs on the same day of the Monthly Lab Cleaning Date.
 - Labelling status
 - Chemical Inventory check
 - PPE status/ Fire extinguisher status etc.
 - Safety training certificate binder
 - MSDS update
 - Etc...
 - Complete the form and submit to the Safety Officer.
 - Consult with Roberto Romeo (roberto.romero@uwaterloo.ca)
- 7) **Term Lab Inventory Check:**
 - At the final Friday of the term: 10:00-11:45 am
 - Barcoding Inventory Check
 - Update the Inventory Spreadsheet

5. RAC Printer

We have a color printer in the RAC1-mail room with IP address: 129.97.9.3

To set up:

- On a Mac, open System Preferences -> Printers & Scanners, Click “+” in the bottom-left corner, then select tab “IP” on the top. In “Address”, Enter the IP address above, then the system checks if it is a printer. After that, you have finished setting up the printer.

- On PC, go to <http://www.support.xerox.com/support/enus.html> (or xerox.com and find “support and drivers” under the Products tab). Search for WorkCentre 7525/7530/7535/7545/7556 and click on “drivers & downloads” under “with built-in controller.” Download “Web-based Print Driver Installer” and run the installer. You only need to download the Postscript driver. The installer will guide you through setting up the printer.

If you already have the driver or it didn’t automatically set up the printer for you, go to “devices and printers” from Control Panel and click “Add a printer” at the top. Choose network printer, “The printer that I want isn’t listed” and then “add a printer using a TCP/IP address or hostname.” Then enter the IP address and the driver will be selected automatically.

6. The QuIN LAB Safety Trainings

All new members ought to complete 5 online safety trainings before starting in lab:

- S01001 Employee safety orientation
- S01081 Workplace violence awareness
- SO2017 WHIMS2015
- S01030 Cryogenic and compressed gas safety
- S01010 Laboratory safety

The new members who need to use lasers should complete the following online safety training as well:

- S01066 Laser safety training theory

Next, read through both the QuIN Lab, the Kim Group Safety Manual, and the Chemical, Laser, and Compressed gas safety tutorials.

7. Getting into the QuIN- Lab!

After completing the online safety trainings (see above), you must read through the QuIN lab safety manuals.

(need to setup) We have a sign-up system using a google calendar for the following equipment:

1. Fume hood in the wet lab
2. Glovebox in the wet lab
3. Optics equipment in the optics lab
4. Etc.

Lab policy is that you forfeit your time if you are 15 min late; if there is high demand for whatever equipment your are using, please be considerate of others and reserve only when you need ☺.

8. Buying Things (TBC)

ON CAMPUS

ONLINE

9. The QuIN-Lab Documentation Repository

- 1) The Kim Group Equipment Inventory Documentation (Excel & Barcoding)
 - a. The Kim-Stanford: Barcode KIMSU-
 - b. The Kim-Waterloo: Barcode KIMUW-
- 2) The QuIN-Lab Chemical Inventory Documentation (Excel & MSDS)
- 3) The QuIN-Lab Standard Operation of Procedures
- 4) Etc

10. Beginning research in the QuIN-Lab!

You must have a plan before entering the research labs.

- 1) The Optics Lab (RAC1-1007/1011)

Talk to Prof. Kim about dress code and general optics safety such as wearing shoe covers, laser safety goggles and no shiny/sharp jewelry, no headphones and etc.. For training and information on specific instruments, please talk to the guru below:

- Ti:Sapphire and other lasers: Prof. Na Young Kim
- PL & EL spectroscopy: Prof. Na Young Kim
- Gas cylinders: Prof. Na Young Kim
- Computers: Prof. Na Young Kim
- Cryostat: Prof. Na Young Kim

2) The Wet Lab (RAC1-2117A)

Talk to Prof. Kim about dress code and general wet lab safety such as wearing shoe covers, safety goggles, lab coats, gloves, and no shiny/sharp jewelry, no headphones and etc.. For training and information on specific instruments, please talk to the guru below:

- Hood: Prof. Na Young Kim
- Glovebox: Prof. Na Young Kim
- Gas cylinders: Prof. Na Young Kim

11. Shared Facilities (TBC)

You must consult with Prof. Kim, who will introduce you to people of equipment and facilities.

1) RAC2 - Prof. David Cory's Labs

- Atomic Force Microscopy : Consult with Deler Langenberg (deler.langenberg@uwaterloo.ca)
- Microscopes : Consult with Deler Langenberg (deler.langenberg@uwaterloo.ca)
- Room-temperate Probe Station: Consult with Guo-Xing Miao
- Low Temperature Probe Station: Consult with Prof. Na Young Kim
- Low Temperature STM: Consult with Deler Langenberg (deler.langenberg@uwaterloo.ca)
- XRD: Consult with Guo-Xing Miao

2) QNC

- The Staging Lab (4th floor: RM xxxx)
- The Chem Lab (4th floor: RM xxxx): Consult with Roberto Romeo (roberto.romero@uwaterloo.ca)
- The Computer Cluster (Sub-basement: RM xxxx): Consult with Steve Weiss & qutask@uwaterloo.ca
- Quantum Nano Fab & Characterization (procedures: TBC)

3) G2N

- Raman Spectroscopy

4) WATLAB

- SEM
- TEM

5) Nanotechnology Measurement Suite

12. Simulation Software in the Computer Cluster

- 1) Lumerical/FDTD
- 2) Python
- 3) Matlab
- 4) Others (RCWA? COMSOL? Etc)

13. Literature

To Keep updated on the latest research, we recommend:

- 1) Papers/Mendely

Both are very useful programs for sorting, reading, and searching for research papers. “Papers” is designed for Mac, and can be purchased. Mendely is compatible with Mac and PC and can be downloaded for free.

- 2) Feedly

A great way to keep up with the literature: just subscribe to the feeds of your favorite journals and Feedly will compile their RSS feed in one site; you can assign searches for keywords based on your research or get the entire feed for a journal.

Journals that many of the QuIN-LAB group members follow include:

- Nature
- Science
- Science Express
- Nature Physics
- Nature Photonics
- Nature Materials
- Nature Communications
- Nature Nanotechnology
- Physical Review Letters
- Applied Physics Letters
- Nano Letters
- ACS NANO
- Optics Letters
- Optics Express
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- 3) arXive : <http://lanl.arxiv.org>
- Mesoscale and Nanoscale Physics
 - Quantum Gases
 - Strongly Correlated Electrons
 - Quantum Physics
- 4) Google Scholar