# Yichao

For shutting off, go through the checklist before turning off the computers.

- Turn off equipments
- Turn off computers

Wait before everyone else finish their equipment shutoff before turning off the computers.
For powering up, first turn the computers on before turning on the equipments.

- Turn on computers
- Turn on equipments
- Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

**Record settings before turning things off.**
All the lasers should be turned off.
All the home built power supplies should be on UPS.
All locks should be disabled.
All temperature controllers should be on UPS and left on.

For each equipment, check the power and make sure if is/should be on UPS. Make sure the "On UPS" label is correct.

## Equipments are mostly located around the laser table facing the wall and the computer.

# Equipment list

| ID | Equipment | Location |
|---|---|---|
| **Laser table facing computer or the wall** top → down, west side → south side | | |
| 1 | Home power (±15,5) | Lv2 above 623 nm box |
| 2 | Benchtop power 2+1 Chn | Lv2 above 1.0 Cs MOT facing computer |
| 3 | Benchtop power 1 Chn | Lv2 above 1.0 Cs MOT facing computer |
| 4 | Benchtop power 1 Chn (x3) | Lv2 above 1.0 Cs MOT facing wall |
| 5 | Home power (24) (x2) | Lv2 above 1.0 Cs Raman |
| 6 | Benchtop power for 1.0 Cs Raman | Lv2 above New Focus lock box |
| 7 | High voltage power | Lv2 above timebase drivers |

| | | |
|---|---|---|
| 8 | Benchtop power for 1.0 Na Raman seed | Lv2 above oscilloscope |
| 9 | Benchtop power 2+1 Chn for Cs MOT beat lock | Lv1 above 1.0 Cs MOT facing computer |
| 10 | Till driver v2 for 1.0 Cs MOT | Lv1 above benchtop powere supply |
| 11 | Home temp servo for 1.0 Cs MOT | Lv1 above Till driver |
| 12 | Valan | 1.5 amplifier stack Lv1 above 1.0 Cs MOT |
| 13 | Till driver v2 for 1.5 Na Raman | Lv1 above 1.5 Na Raman |
| 14 | Home temp servo for 1.5 Na Raman (x2 + adaptor box) | Lv1 above 1.5 Na Raman |
| 15 | New Focus driver for Cs Raman | Lv1 above 1.0 Cs Raman |
| 16 | Benchtop power | Lv1 next to New Focus driver |
| 17 | Shutter driver | Lv1 above 1.0 Cs Raman |
| 18 | New Focus lock box for 1.0 Cs Raman | Lv1 above 1.0 Cs Raman |
| 19 | Timebase drivers for 1.0 Na Raman and Na D2 | Lv1 above Thorlabs temp servo |
| 20 | Thorlabs temp servo for 1.0 Na Raman doubler | Lv1 above 1.0 Na seed |
| 21 | Home lock box for Na D2 | Lv1 above 1.0 Na seed |
| 22 | MPB Raman laser | Lv1 above 1.0 Na MOT |
| 23 | PLL for Cs Raman | Next to 1.0 Cs Raman |
| 24 | PLL for Cs MOT | Below Cs MOT |

# 1 Level 2 cloud

- Off On **Home power (±15,5) [1]**
  **Lv2 above 623 nm box**

  **Turn off check list**
  - ☐ Check On UPS

- Off On **Benchtop power 2+1 Chn [2]**
  **Lv2 above 1.0 Cs MOT facing computer**
  Record voltage/current values:

| | Voltage | Current |
|---|---|---|
| Left | | |
| Right | | |

  **Turn off check list**
  - ☐ Decide (On UPS / Turn off)
  - ☐ (if on UPS) Check On UPS
  - ☐ (if turn off) Unplug load
  - ☐ (if turn off) Label and zip tie loads to the power supply
  - ☐ (if turn off) Turn off and unplug from wall

  **Turn on check list**
  - ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
  - ☐ (if turn off) Plug the load back in

- Off On **Benchtop power 1 Chn [3]**
  **Lv2 above 1.0 Cs MOT facing computer**
  Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

  **Turn off check list**
  - ☐ Decide (On UPS / Turn off)
  - ☐ (if on UPS) Check On UPS
  - ☐ (if turn off) Unplug load
  - ☐ (if turn off) Label and zip tie loads to the power supply
  - ☐ (if turn off) Turn off and unplug from wall

  **Turn on check list**
  - ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
  - ☐ (if turn off) Plug the load back in

- Off On **Benchtop power 1 Chn (x3) [4]**

**Lv2 above 1.0 Cs MOT facing wall**
Record voltage/current values:

| | Voltage | Current | UPS | OFF |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |

**Turn off check list**

- Decide (On UPS / Turn off)
- (if on UPS) Check On UPS
- (if turn off) Unplug load
- (if turn off) Label and zip tie loads to the power supply
- (if turn off) Turn off and unplug from wall

**Turn on check list**

- (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- (if turn off) Plug the load back in

- Off On **Benchtop power for 1.0 Cs Raman [6]**

**Lv2 above New Focus lock box**
Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

**Turn off check list**

- Decide (On UPS / Turn off)
- (if on UPS) Check On UPS
- (if turn off) Unplug load
- (if turn off) Label and zip tie loads to the power supply
- (if turn off) Turn off and unplug from wall

**Turn on check list**

- (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- (if turn off) Plug the load back in

- Off On **Home power (24) (x2) [5]**

**Lv2 above 1.0 Cs Raman**

**Turn off check list**

- Check On UPS

- Off On **High voltage power [7]**

**Lv2 above timebase drivers**
Follow home lock box for Na D2 [21].

- Off On **Benchtop power for 1.0 Na Raman seed [8]**

**Lv2 above oscilloscope**

Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

**Turn off check list**

- Decide (On UPS / Turn off)
- (if on UPS) Check On UPS
- (if turn off) Unplug load
- (if turn off) Label and zip tie loads to the power supply
- (if turn off) Turn off and unplug from wall

**Turn on check list**

- (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- (if turn off) Plug the load back in

## 2 Level 1 clound

- Off On **Benchtop power 2+1 Chn for Cs MOT beat lock [9]**

**Lv1 above 1.0 Cs MOT facing computer**

Record voltage/current values:

| | Voltage | Current |
|---|---|---|
| Left | | |
| Right | | |

**Turn off check list**

- Decide (On UPS / Turn off)
- (if on UPS) Check On UPS
- (if turn off) Unplug load
- (if turn off) Label and zip tie loads to the power supply
- (if turn off) Turn off and unplug from wall

**Turn on check list**

- (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- (if turn off) Plug the load back in

- Off On **Till driver v2 for 1.0 Cs MOT [10]**
  **Lv1 above benchtop powere supply**
  Record current values:

| Current | |
|---|---|

  **Turn off check list**
  - Turn off
  - Unplug power (zip tie to controller)

  **Turn on check list**
  - Plug in power
  - Turn on

- Off On **Till driver v2 for 1.5 Na Raman [13]**
  **Lv1 above 1.5 Na Raman**
  Record current values:

| Current | |
|---|---|

  **Turn off check list**
  - Turn off
  - Unplug power (zip tie to controller)

  **Turn on check list**
  - Plug in power
  - Turn on

- Off On **Home temp servo for 1.0 Cs MOT [11]**
  **Lv1 above Till driver**

  **Turn off check list**
  - Check On UPS

- Off On **Valan [12]**
  **1.5 amplifier stack Lv1 above 1.0 Cs MOT**
  Check with 1.5 to record setting

| Frequency | |
|---|---|
| Amplitude | |

  **Turn on check list**
  - Restore settings

- Off On **Home temp servo for 1.5 Na Raman (x2 + adaptor box) [14]**
  **Lv1 above 1.5 Na Raman**

  **Turn off check list**
  - Check On UPS

- Off On **New Focus driver for Cs Raman [15]**
  **Lv1 above 1.0 Cs Raman**
  Record Temperature, Current, Piezo voltage
  Temperature is accessible in the menu under system status

| | |
|---|---|
| F3 Current | |
| F3 Piezo Voltage | |
| F3 Temperature | |
| F4 Current | |
| F4 Piezo Voltage | |
| F4 Temperature | |

  **Turn off check list**
  - Turn off output.
  - Check plugged into UPS.

  **Turn on check list**
  - (Turn on)

- Off On **Benchtop power [16]**
  **Lv1 next to New Focus driver**
  Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

  **Turn off check list**
  - Decide (On UPS / Turn off)
  - (if on UPS) Check On UPS
  - (if turn off) Unplug load
  - (if turn off) Label and zip tie loads to the power supply
  - (if turn off) Turn off and unplug from wall

  **Turn on check list**
  - (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
  - (if turn off) Plug the load back in

- Off On **Shutter driver [17]**
  **Lv1 above 1.0 Cs Raman**
  Switch off/on with the switch on the back.

- Off On **New Focus lock box for 1.0 Cs Raman [18]**
  **Lv1 above 1.0 Cs Raman**
  Unplug power.

- Off On **Timebase drivers for 1.0 Na Raman and Na D2 [19]**
  **Lv1 above Thorlabs temp servo**
  Record current and T1 settings

| | |
|---|---|
| Raman Current | |
| Raman T1 | |
| D2 Current | |
| D2 T1 | |

  **Turn off check list**
  - Turn off output.
  - Check plugged into UPS.

  **Turn on check list**
  - Turn on

- Off On **Thorlabs temp servo for 1.0 Na Raman doubler [20]**
  **Lv1 above 1.0 Na seed**
  Record temperature settings

| | |
|---|---|
| Setpoint | |

  **Turn off check list**
  - Check On UPS

- Off On **Home lock box for Na D2 [21]**
  **Lv1 above 1.0 Na seed**
  **Turn on-off together with the adjustable high voltage power supply above**
  Record high voltage power supply output

| | |
|---|---|
| Voltage | |

  **Turn off check list**
  - Unlock
  - Turn down the voltage of the high voltage power supply to 0
  - Unplug high voltage power on lockbox (zip tie)
  - Unplug 15V from lockbox (zip tie)
  - Turn off high voltage power supply
  - Unplug high voltage power supply from wall

  **Turn on check list**
  - Plug high voltage power supply into the wall
  - Turn on high voltage power supply (make sure the output is 0)
  - Plug in 15V to lockbox
  - Plug in high voltage to lockbox
  - Turn up the voltage of the high voltage power supply
  - Check HV output

- Off On **MPB Raman laser [22]**
  **Lv1 above 1.0 Na MOT**

  **Turn off check list**
  - Power off
  - Unplug from wall

  **Turn on check list**
  - Plug into wall
  - Power on

# 3 Table

- Off On **PLL for Cs Raman [23]**
  **Next to 1.0 Cs Raman**

  **Turn off check list**

  – Unplug all signals (zip tie together)
  – Unplug 15V and 5V powers (zip tie together)

  **Turn on check list**

  – Plugin 15V and 5V powers
  – Plugin all signals
  – Apply settings

# 4 Floor

- Off On **PLL for Cs MOT [24]**
  **Below Cs MOT**

  **Turn off check list**

  – Unplug all signals (zip tie together)
  – Unplug 15V and 5V powers (zip tie together)

  **Turn on check list**

  – Plugin 15V and 5V powers
  – Plugin all signals
  – Apply settings

# Kenneth

For shutting off, go through the checklist before turning off the computers.

- Turn off equipments
- Turn off computers

Wait before everyone else finish their equipment shutoff before turning off the computers.
For powering up, first turn the computers on before turning on the equipments.

- Turn on computers
- Turn on equipments
- Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

**Record settings before turning things off.**
All the lasers should be turned off.
All the home built power supplies should be on UPS.
All locks should be disabled.
All temperature controllers should be on UPS and left on.

For each equipment, check the power and make sure if is/should be on UPS. Make sure the "On UPS" label is correct.

## Equipments are mostly located around the laser table facing the machine table.

# Equipment list

| ID | Equipment | Location |
|---|---|---|
| **Laser table side facing machine table** top → down, north side → east side | | |
| 1 | Benchtop power 1 Chn | Lv2 northwest corner |
| 2 | Home power (24) | Lv2 above 623 nm box |
| 3 | Benchtop power 2+1 Chn | Lv2 above D1 doubler beam path |
| 4 | Benchtop power 1 Chn | Lv2 left of 2 Chn benchtop power |
| 5 | FPGA box for 1.0 | Lv2 |
| 6 | Software radio | Lv2 |
| 7 | High voltage power | Lv2 next to software radio |

| | | |
|---|---|---|
| 8 | Benchtop power 2+1 Chn | Lv2 next to radio computer |
| 9 | Radio computer | Lv2 northeast corner |
| 10 | Home temp servo | Lv1 next to oscilloscope |
| 11 | Timebase 1038 control box | Lv1 above 623 nm box |
| 12 | Till driver v1 (unused) | Lv1 above D1 double beam path |
| 13 | Thorlabs temp servo for Na D1 seed | Lv1 above Na D1 |
| 14 | Thorlabs current for Na D1 seed | Lv1 above Na D1 |
| 15 | Home temp servo | Lv1 above 976 nm ECDL (Mango) |
| 16 | Thorlabs temp servo for Na D1 doubler | Lv1 above Na D1 |
| 17 | Home lock box for Na D1 | Lv1 above Na saturated absorption beam path |
| 18 | Shutter driver | Lv1 next to variac |
| 19 | Variac for Na cell | Lv1 above 1.0 Na MOT |
| 20 | NKT amplifier | Floor northwest corner |
| 21 | SFG temp servo | Floor on NKT amplifier |
| 22 | Home temp servo | Floor on NKT amplifier |
| 23 | Thorlabs current | Floor on NKT amplifier |
| 24 | ALS fiber laser | Floor middle of table |
| 25 | 671 EOM stack | Floor northeast corner |

# 1 Level 2 cloud

- Off On **Benchtop power 1 Chn [1]**

**Lv2 northwest corner**

Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

**Turn off check list**

- – ☐ Decide (On UPS / Turn off)
- – ☐ (if on UPS) Check On UPS
- – ☐ (if turn off) Unplug load
- – ☐ (if turn off) Label and zip tie loads to the power supply
- – ☐ (if turn off) Turn off and unplug from wall

**Turn on check list**

- – ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- – ☐ (if turn off) Plug the load back in

- Off On **Benchtop power 2+1 Chn [3]**

**Lv2 above D1 doubler beam path**

Record voltage/current values:

| | Voltage | Current |
|---|---|---|
| Left | | |
| Right | | |

**Turn off check list**

- – ☐ Decide (On UPS / Turn off)
- – ☐ (if on UPS) Check On UPS
- – ☐ (if turn off) Unplug load
- – ☐ (if turn off) Label and zip tie loads to the power supply
- – ☐ (if turn off) Turn off and unplug from wall

**Turn on check list**

- – ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- – ☐ (if turn off) Plug the load back in

- Off On **Home power (24) [2]**

**Lv2 above 623 nm box**

**Turn off check list**

- – ☐ Check On UPS

- Off On **Benchtop power 1 Chn [4]**
  **Lv2 left of 2 Chn benchtop power**
  Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

  **Turn off check list**
  - Decide (On UPS / Turn off)
  - (if on UPS) Check On UPS
  - (if turn off) Unplug load
  - (if turn off) Label and zip tie loads to the power supply
  - (if turn off) Turn off and unplug from wall

  **Turn on check list**
  - (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
  - (if turn off) Plug the load back in

- Off On **FPGA box for 1.0 [5]**
  **Lv2**
  **Turn off check list**
  - (Do following three steps quickly)
  - Turn off the box by flipping the switch on the front side of the box
  - Unplug the high voltage (48V) power supply (circular plug) on the front side of the box. Then unplug the power supply itself fromm the outlet.
  - Unplug the 12V board power supply. (L.T.E. one with a rectangular connector in the front)
  - Unplug USB power on the front side near the fan.
  - Zip tie the three unpluged powers to the computer control box.

  **Turn on check list**
  - Connect to 3.5G Windfrek clock generator from Tweezer1. Set frequency to 3.5G and amplitude to max.
  - (Remove power connection zip ties and) Plug in USB power supply.
  - (Do following three steps quickly)
  - Plug in the 12V board power supply.
  - Plug in high voltage power supply.
  - Turn on the power switch of the box. The fans should start spinning.

- Off On **Software radio [6]**
  **Lv2**

  Turn off/on with the switch on the front.

- Off On **High voltage power [7]**
  **Lv2 next to software radio**

  Follow home lock box for Na D1 [17].

- Off On **Benchtop power 2+1 Chn [8]**
  **Lv2 next to radio computer**
  Record voltage/current values:

| | Voltage | Current |
|---|---|---|
| Left | | |
| Right | | |

  **Turn off check list**
  - ☐ Decide (On UPS / Turn off)
  - ☐ (if on UPS) Check On UPS
  - ☐ (if turn off) Unplug load
  - ☐ (if turn off) Label and zip tie loads to the power supply
  - ☐ (if turn off) Turn off and unplug from wall

  **Turn on check list**
  - ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
  - ☐ (if turn off) Plug the load back in

- Off On **Radio computer [9]**
  **Lv2 northeast corner**

  Ask Yichao

## 2 Level 1 cloud

- Off On **Home temp servo [10]**
  **Lv1 next to oscilloscope**

  **Turn off check list**
  - ☐ Check On UPS

- Off On **Timebase 1038 control box [11]**
  **Lv1 above 623 nm box**

  Should be on UPS and Off.

  **Turn off check list**
  - ☐
  - ☐

  **Turn on check list**
  - ☐
  - ☐

- Off On **Till driver v1 (unused) [12]**
  **Lv1 above D1 double beam path**
  **Turn off check list**
  - ☐ Check On UPS

- Off On **Thorlabs temp servo for Na D1 seed [13]**
  **Lv1 above Na D1**
  Record temperature settings

| | |
|---|---|
| Setpoint | |

  **Turn off check list**
  - ☐ Check On UPS

- Off On **Thorlabs current for Na D1 seed [14]**
  **Lv1 above Na D1**
  Record current settings

| Current | |
|---|---|

  **Turn off check list**
  - Turn off
  - Unplug power

  **Turn on check list**
  - Plug in power
  - Check current setting
  - Turn on

- Off On **Home lock box for Na D1 [17]**
  **Lv1 above Na saturated absorption beam path**
  **Turn on-off together with the fixed high voltage power supply above**

  **Turn off check list**
  - Unlock
  - Unplug high voltage power on lockbox (zip tie)
  - Unplug 15V from lockbox (zip tie)
  - Unplug high voltage power supply from walls

  **Turn on check list**
  - Plug high voltage power supply into the wall
  - Plug in 15V to lockbox
  - Plug in high voltage to lockbox
  - Check HV output

- Off On **Home temp servo [15]**
  **Lv1 above 976 nm ECDL (Mango)**

  **Turn off check list**
  - Check On UPS

- Off On **Thorlabs temp servo for Na D1 doubler [16]**
  **Lv1 above Na D1**
  Record temperature settings

| Setpoint | |
|---|---|

  **Turn off check list**
  - Check On UPS

- Off On **Shutter driver [18]**
  **Lv1 next to variac**

  Switch off/on with the switch on the back.

- Off On **Variac for Na cell [19]**

**Lv1 above 1.0 Na MOT**
Record temperature and voltage settings

| | |
|---|---|
| Voltage | |
| Temperature 1 | |
| Temperature 2 | |

Check if we can use the backup power. (Through the UPS)
**Turn off check list**

- Turn voltage to 0
- Switch off
- Unplug from wall

**Turn on check list**

- Plug into wall
- Switch on
- Turn the voltage up **SLOWLY** and monitor the temperature at the same time.

## 3 Floor

- Off On **NKT amplifier [20]**

**Floor northwest corner**
Record settings,

| | |
|---|---|
| | |
| | |
| | |
| | |
| | |

**Turn off check list**

- Power to 0
- Turn off
- Unplug power

**Turn on check list**

- Plug in power
- Turn on
- Restore settings

- Off On **SFG temp servo [21]**

**Floor on NKT amplifier**

Turn off.

- Off On **Home temp servo [22]**

**Floor on NKT amplifier**

**Turn off check list**

- Check On UPS

- Off On **Thorlabs current [23]**
  **Floor on NKT amplifier**
  Record current settings

| Current | |
|---|---|

  **Turn off check list**
  - Turn off
  - Unplug power

  **Turn on check list**
  - Plug in power
  - Check current setting
  - Turn on

- Off On **671 EOM stack [25]**
  **Floor northeast corner**

  Disassemble?

- Off On **ALS fiber laser [24]**
  **Floor middle of table**
  Record settings,

| | |
|---|---|
| | |
| | |
| | |
| | |

  **Turn off check list**
  - Power to 0
  - Turn off
  - Unplug power

  **Turn on check list**
  - Plug in power
  - Turn on
  - Restore settings

## Lewis

For shutting off, go through the checklist before turning off the computers.

- Turn off equipments
- Turn off computers

Wait before everyone else finish their equipment shutoff before turning off the computers.
For powering up, first turn the computers on before turning on the equipments.

- Turn on computers
- Turn on equipments
- Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

**Record settings before turning things off.**
All the lasers should be turned off.
All the home built power supplies should be on UPS.
All locks should be disabled.
All temperature controllers should be on UPS and left on.

For each equipment, check the power and make sure if is/should be on UPS. Make sure the "On UPS" label is correct.

## Equipments are mostly located around the machine table facing the laser table.

# Equipment list

| ID | Equipment | Location |
|---|---|---|
| **Machine table facing the laser table** top → down, west side → south side | | |
| 1 | Keithley power (x2) | Lv2 northwest corner |
| 2 | Benchtop power 2+1 Chn | Lv2 facing computer |
| 3 | Benchtop power 2 Chn | Lv2 above 1.5 Cs MOT/RP current |
| 4 | Home power (24) x2 | Lv2 next to benchtop power |
| 5 | Benchtop power | Lv2 on two home power (24) |
| 6 | Home power (±15,5) | Lv2 middle |
| 7 | Benchtop power (x2, 1 Chn & 2+1 Chn) for uWave Amp | Lv2 next to home power (±15,5) |

| | | |
|---|---|---|
| 8 | Benchtop power 1 Chn | Lv2 above uWave breadboard |
| 9 | Benchtop power (x2, 1 Chn & 2+1 Chn) | Lv2 southeast corner |
| 10 | Function generator for Na switching | Lv1 facing computer |
| 11 | Till driver v1 for 1.5 Cs RP | Lv1 above 1.5 Cs |
| 12 | Till driver v2 for 1.5 Cs MOT | Lv1 above 1.5 Cs |
| 13 | Home temp servo (x2) for 1.5 Cs MOT/RP | Lv1 above 1.5 Cs |
| 14 | Home lock box for 1.5 Cs | Lv1 above 1.5 Cs |
| 15 | Novatec for 1.5 Cs lock | Lv1 above 1.5 Cs |
| 16 | Benchtop power 1 Chn (x2) | Lv1 above 1.5 Na |
| 17 | High voltage power | Lv1 next to 2 benchtop power |
| 18 | Function generator for 1.0 MOT piezo | Lv1 |
| 19 | Temperature and pump controllers for cavity | Lv1 next to function generator |
| 20 | Power (for Na uWave) | Lv1 next to uWave breadboard |
| 21 | SAES pump | Lv1 above 1.0 chamber |
| 22 | PLL for 1.5 Cs MOT | Table near 1.5 Cs MOT |
| 23 | Controllers for TiSapph (Mercury) | Floor northwest corner |
| 24 | Controllers for TiSapph (Venus) | Floor southwest corner |
| 25 | Water chiller for uWave breadboard | Floor |

# 1 Level 2 cloud

- Off On **Keithley power (x2) [1]**

**Lv2 northwest corner**

Record voltage/current values:

| | Voltage | Current | UPS | OFF |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |

- Off On **Benchtop power 2+1 Chn [2]**

**Lv2 facing computer**

Record voltage/current values:

| | Voltage | Current |
|---|---|---|
| Left | | |
| Right | | |

**Turn off check list**

- ☐ Decide (On UPS / Turn off)
- ☐ (if on UPS) Check On UPS
- ☐ (if turn off) Unplug load
- ☐ (if turn off) Label and zip tie loads to the power supply
- ☐ (if turn off) Turn off and unplug from wall

**Turn on check list**

- ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- ☐ (if turn off) Plug the load back in

- Off On **Benchtop power 2 Chn [3]**

**Lv2 above 1.5 Cs MOT/RP current**

Record voltage/current values:

| | Voltage | Current |
|---|---|---|
| Left | | |
| Right | | |

**Turn off check list**

- ☐ Decide (On UPS / Turn off)
- ☐ (if on UPS) Check On UPS
- ☐ (if turn off) Unplug load
- ☐ (if turn off) Label and zip tie loads to the power supply
- ☐ (if turn off) Turn off and unplug from wall

**Turn on check list**

- ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- ☐ (if turn off) Plug the load back in

- Off On **Home power (24) x2 [4]**

**Lv2 next to benchtop power**

**Turn off check list**

- ☐ Check On UPS

- Off On **Benchtop power [5]**
  **Lv2 on two home power (24)**
  Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

**Turn off check list**

- Decide (On UPS / Turn off)
- (if on UPS) Check On UPS
- (if turn off) Unplug load
- (if turn off) Label and zip tie loads to the power supply
- (if turn off) Turn off and unplug from wall

**Turn on check list**

- (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- (if turn off) Plug the load back in

- Off On **Benchtop power (x2, 1 Chn & 2+1 Chn) for uWave Amp [7]**
  **Lv2 next to home power (±15,5)**
  Record voltage/current values:

| | Voltage | Current | UPS | OFF |
|---|---|---|---|---|
| 1 | | | | |
| 2 L | | | | |
| 2 R | | | | |

**Turn off check list**

- Decide (On UPS / Turn off)
- (if on UPS) Check On UPS
- (if turn off) Unplug load
- (if turn off) Label and zip tie loads to the power supply
- (if turn off) Turn off and unplug from wall

**Turn on check list**

- (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- (if turn off) Plug the load back in

- Off On **Home power (±15,5) [6]**
  **Lv2 middle**

**Turn off check list**

- Check On UPS

- Off On **Benchtop power 1 Chn [8]**

**Lv2 above uWave breadboard**
Record voltage/current values:

| Voltage | Current |
|---|---|
| | |

**Turn off check list**

- ☐ Decide (On UPS / Turn off)
- ☐ (if on UPS) Check On UPS
- ☐ (if turn off) Unplug load
- ☐ (if turn off) Label and zip tie loads to the power supply
- ☐ (if turn off) Turn off and unplug from wall

**Turn on check list**

- ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- ☐ (if turn off) Plug the load back in

- Off On **Benchtop power (x2, 1 Chn & 2+1 Chn) [9]**

**Lv2 southeast corner**
Record voltage/current values:

| | Voltage | Current | UPS | OFF |
|---|---|---|---|---|
| 1 | | | | |
| 2 L | | | | |
| 2 R | | | | |

**Turn off check list**

- ☐ Decide (On UPS / Turn off)
- ☐ (if on UPS) Check On UPS
- ☐ (if turn off) Unplug load
- ☐ (if turn off) Label and zip tie loads to the power supply
- ☐ (if turn off) Turn off and unplug from wall

**Turn on check list**

- ☐ (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
- ☐ (if turn off) Plug the load back in

## 2 Level 1 cloud

- Off On **Function generator for Na switching [10]**
  **Lv1 facing computer**
  Record High, Low, Frequency, Phase, Duty cycle

| | |
|---|---|
| No. 1 High V | |
| No. 1 Low V | |
| No. 1 Frequency | |
| No. 1 Phase | |
| No. 1 Duty cycle | |
| No. 2 High V | |
| No. 2 Low V | |
| No. 2 Frequency | |
| No. 2 Phase | |
| No. 2 Duty cycle | |

**Turn off check list**

- – ☐ Check On UPS

- Off On **Till driver v1 for 1.5 Cs RP [11]**
  **Lv1 above 1.5 Cs**
  Record current values:

| | |
|---|---|
| Current | |

**Turn off check list**

- – ☐ Turn off
- – ☐ Unplug power (zip tie to controller)

**Turn on check list**

- – ☐ Plug in power
- – ☐ Turn on

- Off On **Till driver v2 for 1.5 Cs MOT [12]**
  **Lv1 above 1.5 Cs**
  Record current values:

| | |
|---|---|
| Current | |

**Turn off check list**

- – ☐ Turn off
- – ☐ Unplug power (zip tie to controller)

**Turn on check list**

- – ☐ Plug in power
- – ☐ Turn on

- Off On **Home temp servo (x2) for 1.5 Cs MOT/RP [13]**
  **Lv1 above 1.5 Cs**
  **Turn off check list**

- – ☐ Check On UPS

- Off On **Home lock box for 1.5 Cs [14]**
  **Lv1 above 1.5 Cs**

  **Turn off check list**
  - Unlock
  - Unplug 15V from lockbox (zip tie)

  **Turn on check list**
  - Plug in 15V to lockbox

- Off On **Benchtop power 1 Chn (x2) [16]**
  **Lv1 above 1.5 Na**
  Record voltage/current values:

| | Voltage | Current | UPS | OFF |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |

  **Turn off check list**
  - Decide (On UPS / Turn off)
  - (if on UPS) Check On UPS
  - (if turn off) Unplug load
  - (if turn off) Label and zip tie loads to the power supply
  - (if turn off) Turn off and unplug from wall

  **Turn on check list**
  - (if turn off) Plug into the wall and turn on the power supply **Do NOT do this with loads pluged in**
  - (if turn off) Plug the load back in

- Off On **Novatec for 1.5 Cs lock [15]**
  **Lv1 above 1.5 Cs**

  **Turn off check list**
  - Save settings

  **Turn on check list**
  - Restore settings

- Off On **High voltage power [17]**
  **Lv1 next to 2 benchtop power**
  Follow function generator for 1.0 MOT piezo [18].

- Off On **Function generator for 1.0 MOT piezo [18]**
  **Lv1**

  **Turn on-off together with the HV amplifiers for 1.0 piezo mirrors above and the high voltage power supply on the left**
  **Turn off check list**
  - Turn off the function generator
  - Unplug function generator output (zip tie and label)
  - Unplug HV power supply from the wall

  **Turn on check list**
  - Plugin HV power supply to the wall
  - Plugin function generator output
  - Turn on the function generator

- Off On **Temperature and pump controllers for cavity [19]**
  **Lv1 next to function generator**

  Check plugged into UPS.

- Off On **Power (for Na uWave) [20]**
  **Lv1 next to uWave breadboard**

  Unused.

- Off On **SAES pump [21]**
  **Lv1 above 1.0 chamber**

  Check plugged into UPS.

## 3 Table

- Off On **PLL for 1.5 Cs MOT [22]**
  **Table near 1.5 Cs MOT**

  **Turn off check list**
  - Unplug all signals (zip tie together)
  - Unplug 15V and 5V powers (zip tie together)

  **Turn on check list**
  - Plugin 15V and 5V powers
  - Plugin all signals
  - Apply settings

## 4 Floor

- Off On **Controllers for TiSapph (Mercury) [23]**
  **Floor northwest corner**
  Record settings,

| | |
|---|---|
| Pump power | |
| Chiller temperature | |

  **Turn off check list**
  - Standby pump
  - Pump off, shutter close, unplug from wall
  - Turn off SolsTis controller (Lv1 facing KRb), unplug from wall
  - Turn off Chiller, unplug from wall

  **Turn on check list**
  - Turn on chiller, restore setting.
  - Turn on SolsTis controller.
  - Check wavelength setting (700 nm)
  - Pump controller on, pump standby.
  - Pump shutter open. Pump set to original power.

- Off On **Controllers for TiSapph (Venus) [24]**
  **Floor southwest corner**
  Record settings,

| | |
|---|---|
| Chiller temperature | |
| Pump power setpoint | |
| Pump power reading | |
| Wavelength setting | |

  **Turn off check list**

  – Pump power set to 0, shutter close.
  – Pump cool down (takes a long time)
  – Pump off, unplug from wall
  – Turn off SolsTis controller, unplug from wall
  – Turn off Chiller, unplug from wall

  **Turn on check list**

  – Turn on chiller, restore setting.
  – Turn on SolsTis controller.
  – Check wavelength setting
  – Pump controller on, pump warm up (takes a long time).
  – Pump set to original power.

- Off On **Water chiller for uWave breadboard [25]**
  **Floor**

  Turn off.

## Jessie

For shutting off, go through the checklist before turning off the computers.

- Turn off equipments
- Turn off computers

Wait before everyone else finish their equipment shutoff before turning off the computers.
For powering up, first turn the computers on before turning on the equipments.

- Turn on computers
- Turn on equipments
- Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

**Record settings before turning things off.**
All the lasers should be turned off.
All the home built power supplies should be on UPS.
All locks should be disabled.
All temperature controllers should be on UPS and left on.

For each equipment, check the power and make sure if is/should be on UPS. Make sure the "On UPS" label is correct.

## Equipments are mostly located around machine table facing KRb.

# Equipment list

| ID | Equipment | Location |
|---|---|---|
| **Machine table facing KRb** top → down, north side | | |
| 1 | Highest (voltage) power in the lab | Zip tied to you know where it is... |
| 2 | Benchtop power 1 Chn | Lv2 northwest corner facing KRb |
| 3 | Home power (±15,5) | Lv2 above 1.5 Cs Raman |
| 4 | Benchtop power 1 Chn (x2) | Lv2 on home power (±15,5) |
| 5 | High voltage power | Lv2 between home power (±15,5) and FPGA box |
| 6 | FPGA box for 1.5 | Lv2 |
| 7 | Valan | Lv2 left of FPGA box |

| | | |
|---|---|---|
| 8 | Home temp servo x3 for STIRAP | Lv2 left of FPGA box |
| 9 | Benchtop power (x9, 2+1 Chn x2 & 2 Chn x1 & 1 Chn x6) | Lv2 |
| 10 | Home power (24) | Lv2 above 1.0 tweezer breadboard |
| 11 | Home power (±15,5) | Lv2 on home power (24) |
| 12 | Benchtop power 2 Chn | Lv2 northeast corner |
| 13 | Keithley multimeter (x2) | Lv2 northeast corner |
| 14 | Shutter driver | Lv1 on M2 controller |
| 15 | Function generator | Lv1 on shutter driver |
| 16 | Home temp servo | Lv1 left of M2 controller |
| 17 | Home lock box x2 | Lv1 left of home temp servo |
| 18 | Till driver v2 | Lv1 above 1.5 Cs Raman beam path |
| 19 | Delay generator for 1.5 Na | Lv1 below 1.5 output panel |
| 20 | Rack for STIRAP | Lv1 above STIRAP |
| 21 | Till driver (x2, v1 & v2) for STIRAP lasers | Lv1 above rack for 1.5 |
| 22 | Vincent servo x2 for STIRAP lasers | Lv1 |
| 23 | Home servo x2 | Lv1 |
| 24 | Current servo for compensation coil | Lv1 below home power (24) |
| 25 | Greiner servo | Lv1 northeast corner |
| 26 | Home temp servo x2 for 1.5 Cs Raman | Floor rack Lv2 |
| 27 | Benchtop power 2 Chn? | Floor rack Lv2 on home temp servo x2 |
| 28 | Benchtop power 1 Chn | Floor rack Lv2 left of uWave foam |
| 29 | Till driver v2 x2 for 1.5 Cs Raman | Floor rack Lv2 |
| 30 | Home servo for 1.5 Cs Raman phase lock | Floor rack Lv2 above Till drivers |
| 31 | Benchtop power 2+1 Chn | Floor rack Lv1 |
| 32 | Benchtop power 1 Chn | Floor rack Lv1 |

| | | |
|---|---|---|
| 33 | Chiller for 1.0 camera | Floor |
| 34 | Benchtop power 1 Chn x 3 | Floor STIRAP rack Lv2 |

## 1 Level 3 cloud

- Off On **Highest (voltage) power in the lab [1]**
  **Zip tied to you know where it is...**

## 2 Level 2 cloud

- Off On **Benchtop power 1 Chn [2]**
  **Lv2 northwest corner facing KRb**
- Off On **Home power (±15,5) [3]**
  **Lv2 above 1.5 Cs Raman**
- Off On **Benchtop power 1 Chn (x2) [4]**
  **Lv2 on home power (±15,5)**
- Off On **High voltage power [5]**
  **Lv2 between home power (±15,5) and FPGA box**
- Off On **FPGA box for 1.5 [6]**
  **Lv2**
- Off On **Valan [7]**
  **Lv2 left of FPGA box**
- Off On **Home temp servo x3 for STIRAP [8]**
  **Lv2 left of FPGA box**
- Off On **Benchtop power (x9, 2+1 Chn x2 & 2 Chn x1 & 1 Chn x6) [9]**
  **Lv2**
- Off On **Home power (24) [10]**
  **Lv2 above 1.0 tweezer breadboard**
- Off On **Home power (±15,5) [11]**
  **Lv2 on home power (24)**
- Off On **Benchtop power 2 Chn [12]**
  **Lv2 northeast corner**
- Off On **Keithley multimeter (x2) [13]**
  **Lv2 northeast corner**

## 3 Level 1 cloud

- Off On **Shutter driver [14]**
  **Lv1 on M2 controller**

- Off On **Function generator [15]**
  **Lv1 on shutter driver**
- Off On **Home temp servo [16]**
  **Lv1 left of M2 controller**
- Off On **Home lock box x2 [17]**
  **Lv1 left of home temp servo**
- Off On **Till driver v2 [18]**
  **Lv1 above 1.5 Cs Raman beam path**
- Off On **Delay generator for 1.5 Na [19]**
  **Lv1 below 1.5 output panel**
- Off On **Rack for STIRAP [20]**
  **Lv1 above STIRAP**
- Off On **Till driver (x2, v1 & v2) for STIRAP lasers [21]**
  **Lv1 above rack for 1.5**
- Off On **Vincent servo x2 for STIRAP lasers [22]**
  **Lv1**
- Off On **Home servo x2 [23]**
  **Lv1**
- Off On **Current servo for compensation coil [24]**
  **Lv1 below home power (24)**
- Off On **Greiner servo [25]**
  **Lv1 northeast corner**

**4 Floor**

- Off On **Home temp servo x2 for 1.5 Cs Raman [26]**
  **Floor rack Lv2**
- Off On **Benchtop power 2 Chn? [27]**
  **Floor rack Lv2 on home temp servo x2**
- Off On **Benchtop power 1 Chn [28]**
  **Floor rack Lv2 left of uWave foam**

- Off On **Till driver v2 x2 for 1.5 Cs Raman [29]**
  **Floor rack Lv2**

- Off On **Home servo for 1.5 Cs Raman phase lock [30]**
  **Floor rack Lv2 above Till drivers**

- Off On **Benchtop power 2+1 Chn [31]**
  **Floor rack Lv1**

- Off On **Benchtop power 1 Chn [32]**
  **Floor rack Lv1**

- Off On **Chiller for 1.0 camera [33]**
  **Floor**

- Off On **Benchtop power 1 Chn x 3 [34]**
  **Floor STIRAP rack Lv2**

# Will

For shutting off, go through the checklist before turning off the computers.

- ☐ Turn off equipments
- ☐ Turn off computers

Wait before everyone else finish their equipment shutoff before turning off the computers.
For powering up, first turn the computers on before turning on the equipments.

- ☐ Turn on computers
- ☐ Turn on equipments
- ☐ Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

**Record settings before turning things off.**
All the lasers should be turned off.
All the home built power supplies should be on UPS.
All locks should be disabled.
All temperature controllers should be on UPS and left on.

For each equipment, check the power and make sure if is/should be on UPS. Make sure the "On UPS" label is correct.

## Equipments are mostly located around 1.5 table.
## The power supply on the second floor may need to be shut down first.

# Equipment list

| ID | Equipment | Location |
|---|---|---|
| **1.5 Rack** | | |
| 1 | Home power (24) | Bottom level |
| 2 | Benchtop power 2 Chn | Above home power (24) |
| 3 | SAES pump controller | Middle left |
| 4 | Benchtop power 1 Chn x2? | Middle next to pump controller |
| 5 | Benchtop power 2 Chn for 1.5 coil | Above oscilloscopes |
| 6 | Home power (±15,5) | Top level |
| 7 | Function generator for 1.5 MOT piezo | Top level on high voltage Amp |

| | | |
|---|---|---|
| **Below 1.5 table** | | |
| 8 | IGBT stack | Floor |
| 9 | Chiller for 1.5 camera | Floor behind IGBT |
| 10 | Benchtop power 1 Chn x 4 | Floor between table and drawers |
| **Other** | | |
| 11 | Feshbach power | HVAC room |
| 12 | Cooling water | |

## 1 1.5 Rack

- Off On **Home power (24) [1]**
  Bottom level
- Off On **Benchtop power 2 Chn [2]**
  Above home power (24)
- Off On **SAES pump controller [3]**
  Middle left
- Off On **Benchtop power 1 Chn x2? [4]**
  Middle next to pump controller
- Off On **Benchtop power 2 Chn for 1.5 coil [5]**
  Above oscilloscopes
- Off On **Home power (±15,5) [6]**
  Top level
- Off On **Function generator for 1.5 MOT piezo [7]**
  Top level on high voltage Amp

## 2 Below 1.5 table

- Off On **IGBT stack [8]**
  Floor
- Off On **Chiller for 1.5 camera [9]**
  Floor behind IGBT
- Off On **Benchtop power 1 Chn x 4 [10]**
  Floor between table and drawers

## 3 Other

- Off On **Feshbach power [11]**
  HVAC room
- Off On **Cooling water [12]**