#### 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 $\rightarrow$ down, west side $\rightarrow$ south side		
1	Home power $(\pm 15,5)$	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

• Home power  $(\pm 15,5)$  [1]

#### Turn off check list

- Check On UPS

• 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

# • 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

- (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

### • 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

### • 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



#### Turn off check list

- Check On UPS

### • High voltage power [7]

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

### • 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

• 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

- (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

•	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

• 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

• Home temp servo for 1.0 Cs

MOT [11]

Lv1 above Till driver

Turn off check list

– Check On UPS

• 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

• 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

## • 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)

### • 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

• Shutter driver [17]
Lv1 above 1.0 Cs Raman
Switch off/on with the switch on the back.

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

## • 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

## • 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

### • 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	
voitage	

#### 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

## • MPB Raman laser [22] Lv1 above 1.0 Na MOT

#### Turn off check list

- Power off
- Unplug from wall

- Plug into wall
- Power on

#### 3 Table

### • 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

• 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)

- 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 $\rightarrow$ down, north side $\rightarrow$ 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	$\mathrm{Lv2}$	
6	Software radio	$\mathrm{Lv2}$	
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

### • 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

### • 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

## • Home power (24) [2] Lv2 above 623 nm box

#### Turn off check list

- Check On UPS

### • 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

### • 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.

## • Software radio [6]

Turn off/on with the switch on the front.

## • High voltage power [7] Lv2 next to software radio

Follow home lock box for Na D1 [17].

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
- (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
- (if turn off) Plug the load back in
- Radio computer [9]

Lv2 northeast corner

Ask Yichao

- Level 1 cloud
  - Home temp servo [10] Lv1 next to oscilloscope

Turn off check list

- Check On UPS

Timebase 1038 control box [11]

Lv1 above 623 nm box

Should be on UPS and Off.

Turn off check list



Turn on check list



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

Thorlabs temp servo for Na D1 seed [13]

Lv1 above Na D1

Record temperature settings

Setpoint	Set
----------	-----

Turn off check list

- Check On UPS

# • 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
- Home temp servo [15]
  Lv1 above 976 nm ECDL (Mango)

#### Turn off check list

– Check On UPS

# • Thorlabs temp servo for Na D1 doubler [16]

Lv1 above Na D1

Record temperature settings

Setpoint

#### Turn off check list

– Check On UPS

## • Home lock box for Na D1

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

• Shutter driver [18]

Lv1 next to variac

Switch off/on with the switch on the back.

## 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.

#### Floor 3

### NKT amplifier [20]

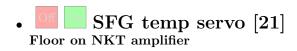
Floor northwest corner Record settings,

#### Turn off check list

- Power to 0
- Turn off
- Unplug power

#### Turn on check list

- Plug in power
- Turn on
- Restore settings



Turn off.

Home temp servo [22] Floor on NKT amplifier

#### Turn off check list

- Check On UPS

•	Floor on	Thorlabs cun NKT amplifier rent settings	irrent [23]		
	Current				
	Turn off	heck list			
		rn off plug power			
	Turn on o				
	– Pl	ig in power			
	- Cl	eck current setting	r S		
	– <b>T</b> t	rn on			
•	Floor mic Record set	ALS fiber ladle of table ings,	aser [24]		
	Turn off check list				
		wer to 0 rn off			
	– Unplug power				
	Turn on check list				

Plug in power

Restore settings

Turn on

• 671 EOM stack [25] Floor northeast corner

Disassemble?

#### 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 $\rightarrow$ down, west side $\rightarrow$ south side				
1	Keithley power (x2)	Lv2 northwest corner			
2	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 $(\pm 15,5)$	Lv2 middle			
7	Benchtop power (x2, 1 Chn & 2+1 Chn) for uWave Amp	Lv2 next to home power $(\pm 15,5)$			

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 $1.5~\mathrm{Cs}~\mathrm{RP}$	Lv1 above 1.5 Cs	
12	Till driver v2 for $1.5~\mathrm{Cs}~\mathrm{MOT}$	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 $1.5~\mathrm{Cs}~\mathrm{MOT}$	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

### • Keithley power (x2) [1]

Lv2 northwest corner

Record voltage/current values:

	Voltage	Current	UPS	OFF
1				
2				

### • 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

### • 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

## • Home power (24) x2 [4] Lv2 next to benchtop power

#### Turn off check list

– Check On UPS

### • 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

# 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

## • Home power $(\pm 15,5)$ [6]

#### Turn off check list

– Check On UPS

### • 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

## • 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

- (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

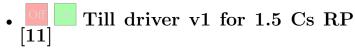
• Function generator for Na switching [10]

Lv1 facing computer

Record High, Low, Frequency, Phase, Duty cycle

#### Turn off check list

- Check On UPS



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
- Till driver v2 for 1.5 Cs MOT

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
- Home temp servo (x2) for 1.5 Cs MOT/RP [13]

Lv1 above 1.5 Cs

Turn off check list

– Check On UPS

## • 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

### • 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

## • Novatec for 1.5 Cs lock [15] Lv1 above 1.5 Cs

#### Turn off check list

– Save settings

#### Turn on check list

- Restore settings

### • High voltage power [17]

Lv1 next to 2 benchtop power

Follow function generator for 1.0 MOT piezo [18].

# Function generator for 1.0 MOT piezo [18]

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

# • Temperature and pump controllers for cavity [19] Lv1 next to function generator

Check plugged into UPS.

## • Power (for Na uWave) [20] Lv1 next to uWave breadboard

Unused.

## • SAES pump [21] Lv1 above 1.0 chamber

Check plugged into UPS.

#### 3 Table

## • 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

## • 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 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.

## • Controllers for TiSapph (Venus) [24]

Floor southwest corner

Record settings,

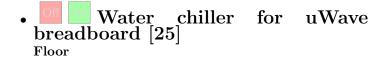
Chiller temperature	
Pump power setpoint	
Pump power reading	
Wavelength setting	

#### 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.



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 $\rightarrow$ 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 $(\pm 15,5)$	Lv2 above 1.5 Cs Raman			
4	Benchtop power 1 Chn (x2)	Lv2 on home power $(\pm 15,5)$			
5	High voltage power	Lv2 between home power ( $\pm 15,5$ ) 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 $(\pm 15,5)$	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

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

#### 2 Level 2 cloud

• Benchtop power 1 Chn [2]
Lv2 northwest corner facing KRb
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

## • Benchtop power 1 Chn (x2)

 $\overline{\text{Lv2}}$  on home power (±15,5) 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

## • Home power $(\pm 15,5)$ [3]

#### Turn off check list

– Check On UPS

• High voltage power [5]
Lv2 between home power (±15,5) and FPGA box

### • FPGA box for 1.5 [6]

#### Lv2

Save 3.5 GHz amplitude

mplitude	Amp
----------	-----

#### Turn off check list

- Save 3.5 GHz amplitude.
- (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 left 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

- Set 3.5 GHz frequency and amplitude.
- (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. The fans should start spinning.
- Turn on the power switch of the box.

## • Valan [7] Lv2 left of FPGA box

Save frequency and amplitude

	Frequency	Amplitude
Ch 1		
Ch 2		

• Home temp servo x3 for STI-RAP [8] Lv2 left of FPGA box

Turn off check list

– Check On UPS

## Benchtop power (x9, 2+1 Chn x2 & 2 Chn x1 & 1 Chn x6) $_{\rm Lv2}^{\rm [9]}$

Record voltage/current values:

	Voltage	Current	UPS	OFF	
	1 Channel x 6				
1					
2					
3					
4					
5					
6					
2 Channel x 1					
7 L					
7 R					
2+1 Channel x 2					
8 L					
8 R					
9 L					
9 R	or 1 11' 4				

#### 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
- (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 6
- (if turn off) Plug the load back in

- Home power (24) [10] Lv2 above 1.0 tweezer breadboard Turn off check list
  - Check On UPS
- Home power  $(\pm 15,5)$  [11] Lv2 on home power (24) Turn off check list
  - Check On UPS
- Benchtop power 2 Chn [12]

Lv2 northeast corner

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
- (if turn off) Turn off and unplug from wall

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

•	Keithley multimeter (x2) [13] Lv2 northeast corner Ask Kenneth  Level 1 cloud  Shutter driver [14] Lv1 on M2 controller Switch off/on with the switch on the back.	Till driver v2 [18] Lv1 above 1.5 Cs Raman beam path 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
•	Function generator [15] Lv1 on shutter driver  TODO	• Delay generator for 1.5 Na [19] Lv1 below 1.5 output panel Record current values:
•	Home temp servo [16] Lv1 left of M2 controller Turn off check list  - Check On UPS	Turn off check list
•	Home lock box x2 [17] Lv1 left of home temp servo  TODO	Turn on check list  -

Rack for STIRAP [20] Lv1 above STIRAP Ask Lewis  Turn off check list	• Wincent servo x2 for STI-RAP lasers [22] Lv1 Ask Lewis  Turn off check list
	• TODO Home servo x2 [23]
Till driver (x2, v1 & v2) for STIRAP lasers [21] Lv1 above rack for 1.5 Record current values:	• Current servo for compensation coil [24] Lv1 below home power (24) Ask Lewis
Current 2  Turn off check list  - Turn off	Turn off check list
- Unplug power (zip tie to controller)	Turn on check list
Turn on check list	_
– Plug in power	-
– Turn on	-

• Greiner servo [25]

Lv1 northeast corner

Turn off check list

- Check On UPS

- 4 Floor
  - Home temp servo x2 for 1.5 Cs Raman [26]

Turn off check list

– Check On UPS

• Benchtop power 2 Chn? [27]
Floor rack Lv2 on home temp servo x2

TODO

• Benchtop power 1 Chn [28]

Floor rack Lv2 left of uWave foam 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
- Till driver v2 x2 for 1.5 Cs Raman [29]

Floor rack Lv2

Record current values:

Current 1	
Current 2	

#### Turn off check list

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

- Plug in power
- Turn on

• Home servo for 1.5 Cs Raman phase lock [30]
Floor rack Lv2 above Till drivers

#### Turn off check list

- Check On UPS

# • Benchtop power 2+1 Chn [31]

Floor rack Lv1

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

### • Benchtop power 1 Chn [32]

Floor rack Lv1

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

• Chiller for 1.0 camera [33]

TODO

### Benchtop power 1 Chn x 3

### [34]

#### Floor STIRAP rack Lv2

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

- (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

#### 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 $(\pm 15,5)$	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

• Home power (24) [1]
Bottom level
Turn off check list

- Check On UPS

### • Benchtop power 2 Chn [2]

Above home power (24)

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

## • SAES pump controller [3] Middle left

#### Turn off check list

– Check On UPS

# • Benchtop power 1 Chn x2? [4] Middle next to pump controller

## • Benchtop power 2 Chn for 1.5 coil [5]

Above oscilloscopes

TODO

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

### • In Home power ( $\pm 15,5$ ) [6]

Top level

Turn off check list

- Check On UPS

• Function generator for 1.5 MOT piezo [7]
Top level on high voltage Amp
TODO

## • Benchtop power 1 Chn x 4 [10]

Floor between table and drawers Record voltage/current values:

	Voltage	Current	UPS	OFF
1				
2				
3				
4				

#### 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
- $\blacksquare$  (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 Below 1.5 table
  - IGBT stack [8]
    Floor
    TODO

• Chiller for 1.5 camera [9]
Floor behind IGBT
TODO

#### 3 Other

### Feshbach power [11]

#### **HVAC** room

II VAC 100III		
	Voltage	
	Current	
Record settings,		

#### Turn off check list

- Switch off.

#### Turn on check list

- Make sure water cooling is on.
- Switch on.
- Restore settings.

## Cooling water [12] Turn off check list

- Make sure coil power and IGBTs are off.
- Switch off.

#### Turn on check list

Switch on before turning on coil power.