

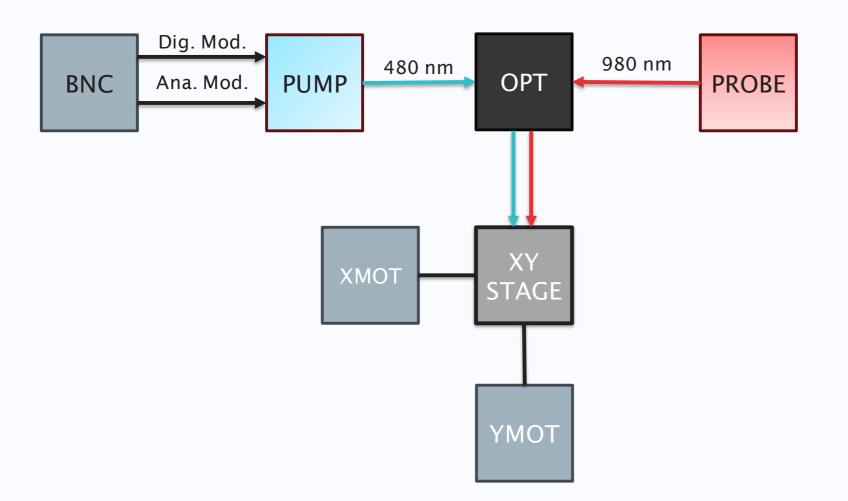


Python Integration of the Sb2Se3 Optical Switching Experiment

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Technical Setup

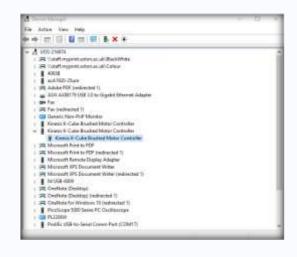


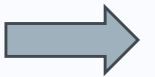
- BNC BK Precision 4063B.
 Controlled trough python.
- PUMP 480 nm laser.
 Controlled by BNC.
- OPT Optical setup.
 Different optical elements (black box).
- PROBE 980 nm laser.
 Always constant power.
- XMOT and YMOT Thorlabs KDC101 Brushed
 Motor Controllers.
 Controlled through
 Python.
- XY STAGE. Controlled by motors.



Software Requirements

- All the code is written in Python and maintained on the GitHub repository: pyphotonics.
- To be able to use the code, you have to first install git: git-scm
- Connect all the instruments to the computer. Install the latest drivers for Thorlabs KDC101 <u>APT Drivers</u>.
- Updated the devices corresponding to the KDC101 motors with the Thorlabs driver via Device Manager.





Opdate Drivers - Kinesis K	Cube Bro	ushed Motor Controller	
Select the device drive	er you w	vant to install for this hardware.	
		model of your hardware device and then click Next. If you want to install, click Have Disk.	you have a
Show compatible hardwa	re		
· .			
Manufacturer	^	Model	_
Manufacturer Thorlabs	^	Model Kinesis Console	^
	^		^
Thorlabs	^	Kinesis Console	^



Programming Setup

Create a conda environment with Python 3.11

```
conda create --name pyphotonics python=3.11
```

Activate the environment and install all the packages in requirements.txt via pip.
Open an IDE, create a project and choose pyphotonics as the interpreter. Open
cmd, navigate to the directory where the project is located and initialize a git
repository.

```
git init --initial-branch=main
```

Add the pyphotonics GitHub repo as the remote origin.

```
git remote add origin https://github.com/dntrubacs/pyphotonics.git
```

Pull the latest version of the code.

```
git pull origin main
```



Code Structure

Sb2Sb3ExperimentControl

- Controls the main experiment.
- Writes on a pixel by sending a short pulse.
- Moves the motors to make a pixel map.

BKCom

- Controls the BNC.
- Sends Analog and Digital Modulation.

KDC101Com

- Controls the motors.
- Move the motor to a given position.



YOUR QUESTIONS