



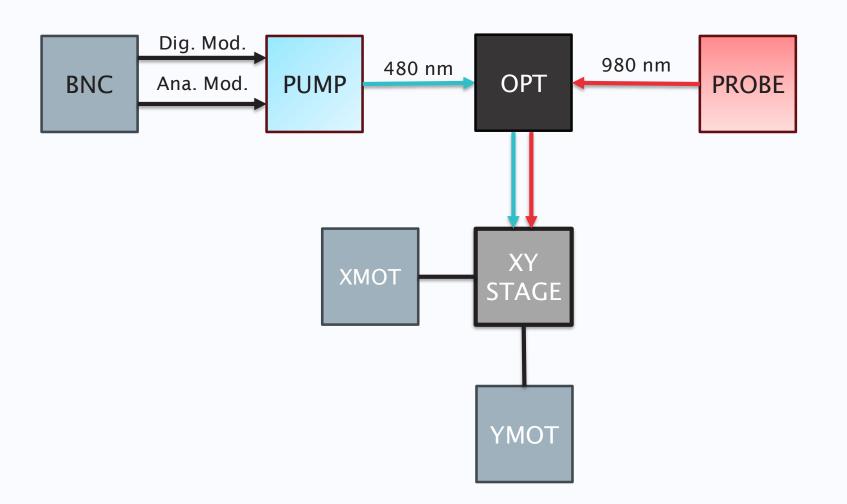
# Python Integration of the Sb2Se3 Optical Switching Experiment

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# Technical Setup

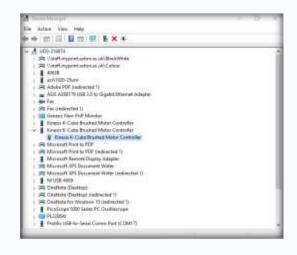


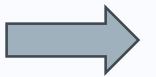
- BNC BK Precision 4063B.
   Controlled trough python.
- PUMP 480 nm laser. Controlled by BNC.
- OPT Optical setup.
   Different optical elements (black box).
- PROBE 980 nm laser.
   Always constant power.
- XMOT and YMOT Thorlabs KDC101 Brushed
   Motor Controllers.
   Controlled through
   Python.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



# Software Requirements

- All the code is written in Python and maintained on the GitHub repository: <u>pyphotonics</u>.
- 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 APT Drivers.
- Updated the devices corresponding to the KDC101 motors with the Thorlabs driver via Device Manager.





<b>←</b>	Update Drivers - Kinesis K-Cube Brushed Motor Controller  Select the device driver you want to install for this hardware.			
	Show compatible hardwar	e		
	Manufacturer	^	Model	1
	Thorlabs		Kinesis Console	
	П		Kinesis K-Cube Brushed Motor Controller	
	ULi Electronics Inc.		Kinesis K-Cube Brushless Motor Controller	
	Unsupported Device	~	Kinesis K-Cube Laser Diode Controller	



# 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**