* **Functionality**
  + Measure the displacement of a TIRF alignment beam
  + Maintain software feedback and a TIRF signal
* **Components**
  + Includes:
    - a quadrant photodiode head
    - TIRF lock controller
* **Software Compatibility**
  + MadCity Labs Micromirror TIRF system
  + LabVIEW based VI
* **QPH**
  + 4 quadrants: A,B,C, & D
    - Convert light intensity into analog voltage
    - Analog signals are sent to TIRF lock controller
      * X & Y are calculated using:
        + X = (A+D) -(B+C)
        + Y = (A+B) -(C+D)
        + SUM=(A+B+C+D)
* **Alignment**
  + X & Y must be 5V or close (each); SUM <= 10V
  + Use X and Y Gain knobs
    - To decrease, counterclockwise
* **Beam Size**
  + 300um<X<1500um
  + Recommended: 400um<X<1100um
* **Beam Power Measurement**
  + Beam Power=SUM/(G\*R)
    - Beam Power=power of laser beam hitting the active area of the QPD [Milliwatts]
    - SUM=SUM reading from TIRF Lock controller [Volts]
    - G=transimpedance gain of photodiode amplifer [Kilovolts/Amps]
    - R=Responsivity of photodiode as a function of wavelength in units of[Amps/Watts].
* **Supplied Software**
  + **Tirf-Lock.vi**
    - **Allows to view x,y and summed amplitude values**