

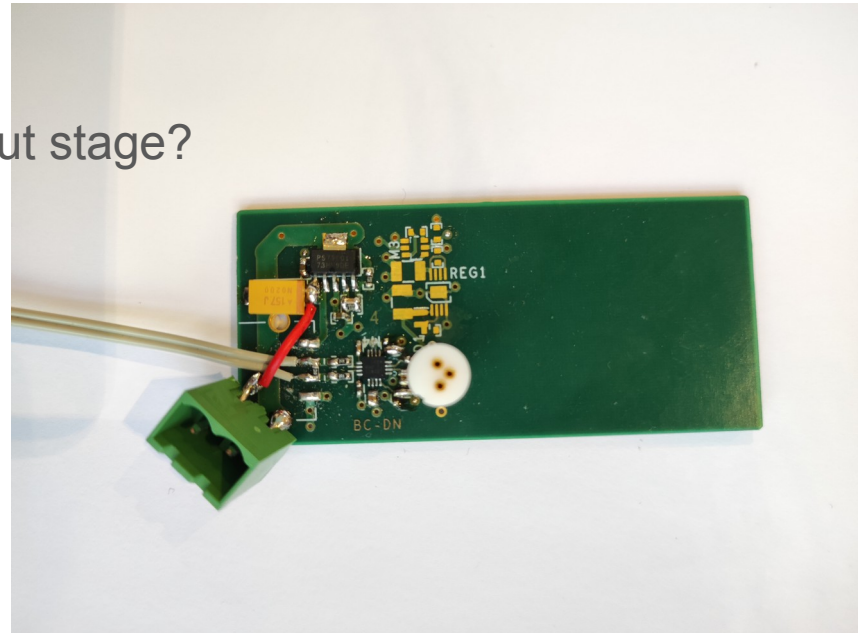
# Ongoing/Planning?

Sabrina Sacerdoti, for APC

APC - date

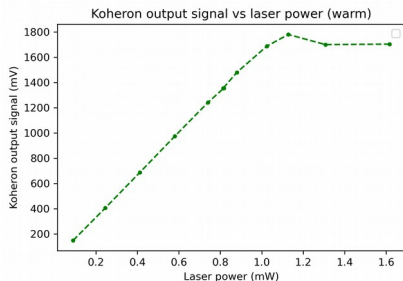
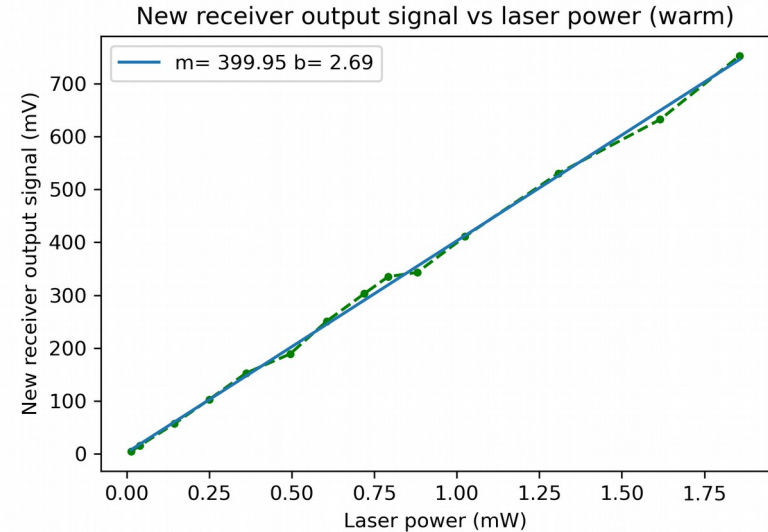
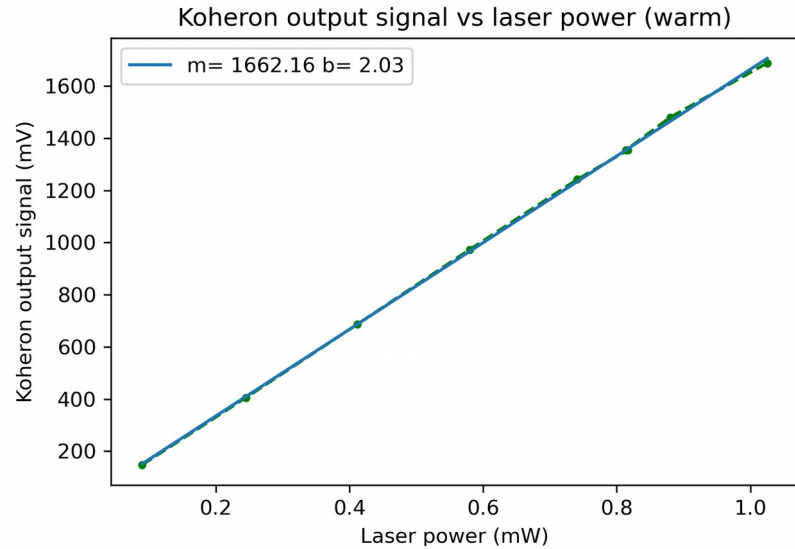
# Receiver

- Simple receiver following Koheron working principle
- Based on a pin diode + TIA opamp chip (no gain settings but options for DC offset, coupling, ...), with differential output
- Target: 16 channel low noise receiver with adequate output for DAPHNE ADC chip
  - Wider input range
  - Possibly powered by DAPHNE
  - Could be a modification to DAPHNE's input stage?
- Status:
  - Test of 1-channel prototype



# Receiver

- Using a DC light signal as input (no BW considerations yet)



\* The Koheron saturates at  $\sim 1.1$  mW, whereas the new receiver can take  $> 1.75$  mW

\* Koheron gain = 3.9k, new receiver  $\sim 2$ k (more adequate)

# Planning - Transmitter

- Laser-fiber connection:
  - Test of potting: Stycast 1266 (epoxy), LOCTITE,.....
- From Bill: avoid corrosive elements (could ruin fibers), sylicon seems a better option
- Light leakage: from fiber or connector? (check with Bill). We have checked both using a power meter with  $\sim 10\mu\text{W}$  sensitivity and don't see anything!
  - To be re-checked at Fermilab
- Undershoot source?
  - AC coupling or BW limit or something else? Some checks possible at lab
- Finalizing gain needed?

# Planning – Summer Coldbox - Module0

- Determining correct gain/offset
  - need to ask lasermate some questions (contact Ivy for order and ask, Alan interested too to ask about custom pigtail)
  - Slope efficiency? Lenses? Rf?
- Digitizer data taking → Henrique
- DAPHNE status → ready for July?
- Fiber cleaner → important for PoF!
- Feedthroughs → current ones are ok
- Fibers → change from MM to SM? Check if there's an impact in S/N
  - SM would have lower “variations”
  - Telecom grade MM collects more light, but speckle issue → unstable.
  - Possible config test: short MM coupled to laser + SM for propagation
  - SM bundles?