

Update on PE-Laser system

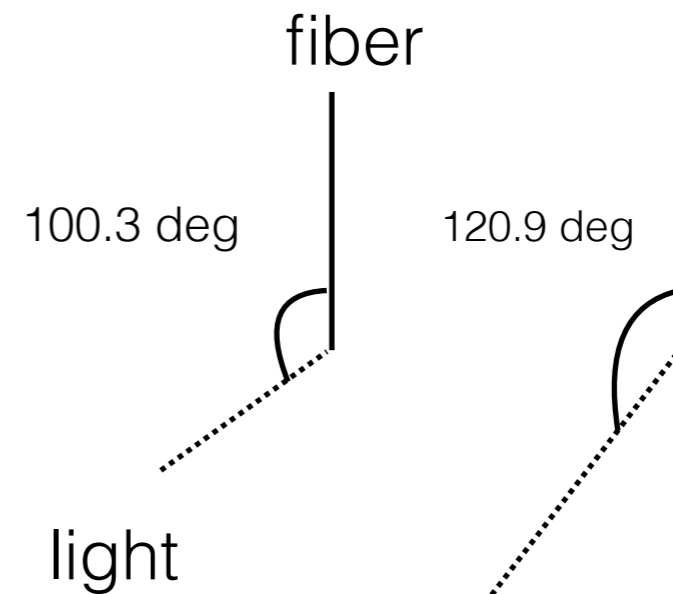
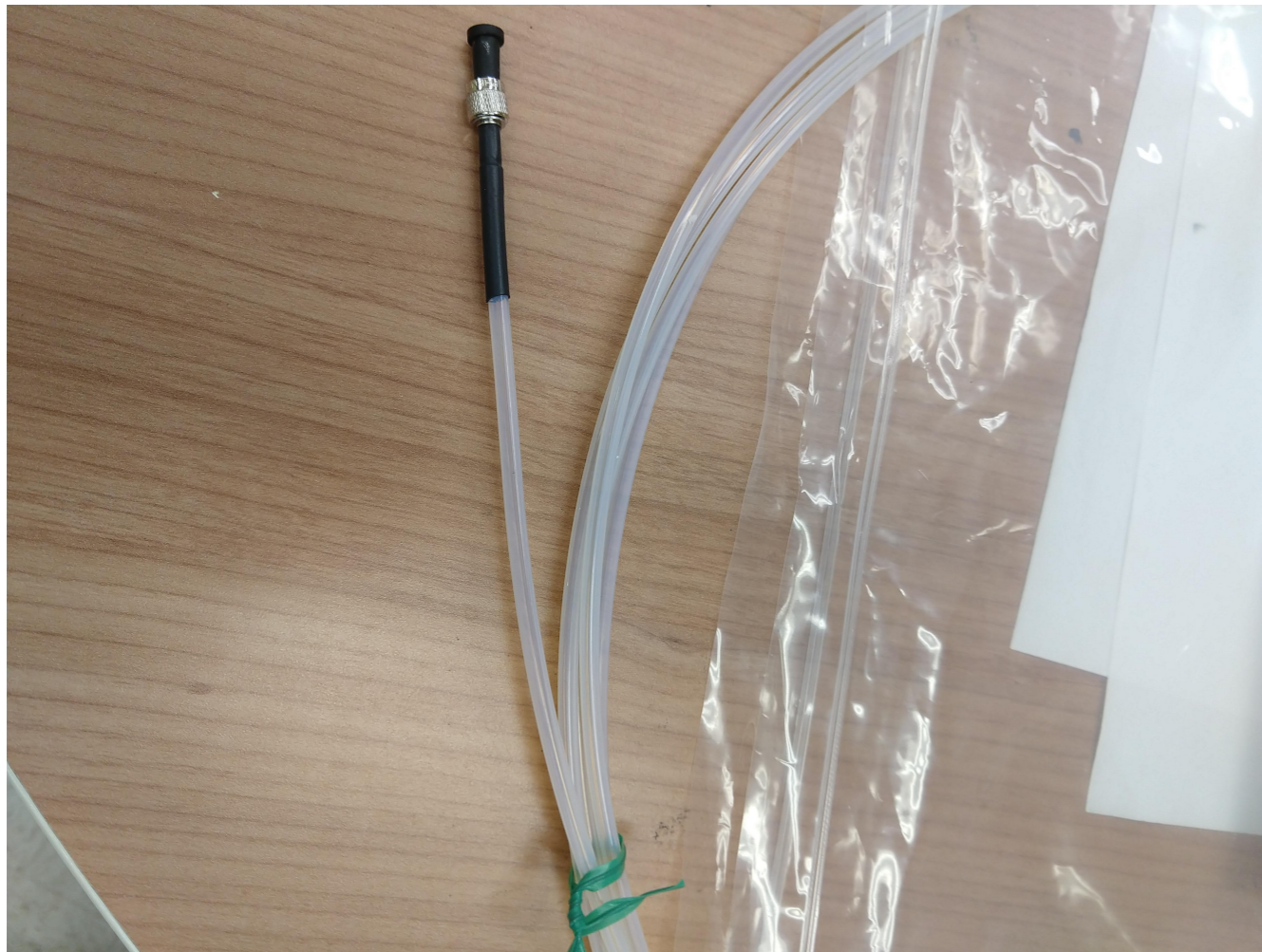
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Univ. of Hawaii

March 11, 2020
Laser Working Group meeting

- Two sample fibers arrived from Molex/Polymicro

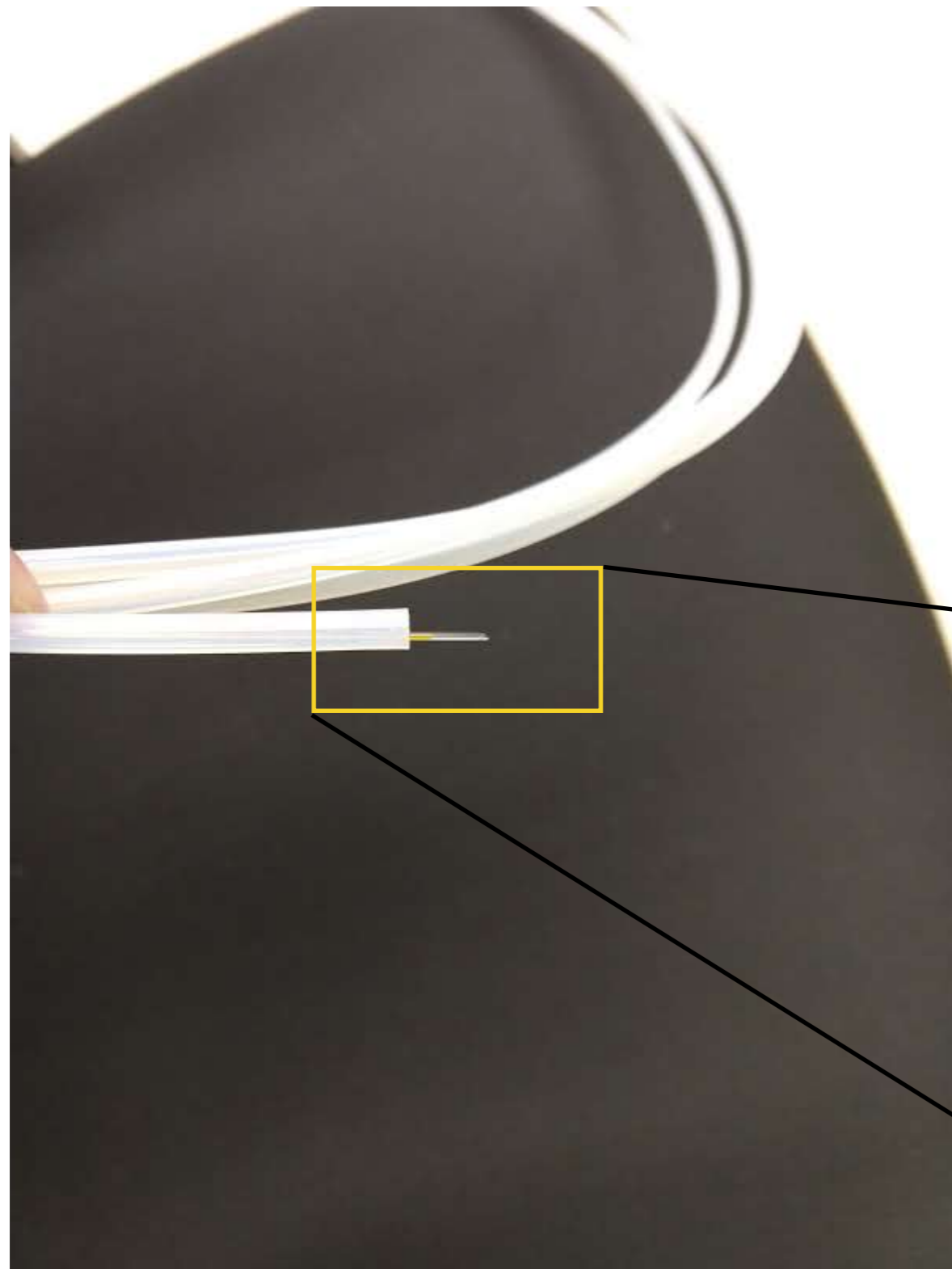
We had asked for two different “side-fire” angles: 100.3 and 120.9 degrees



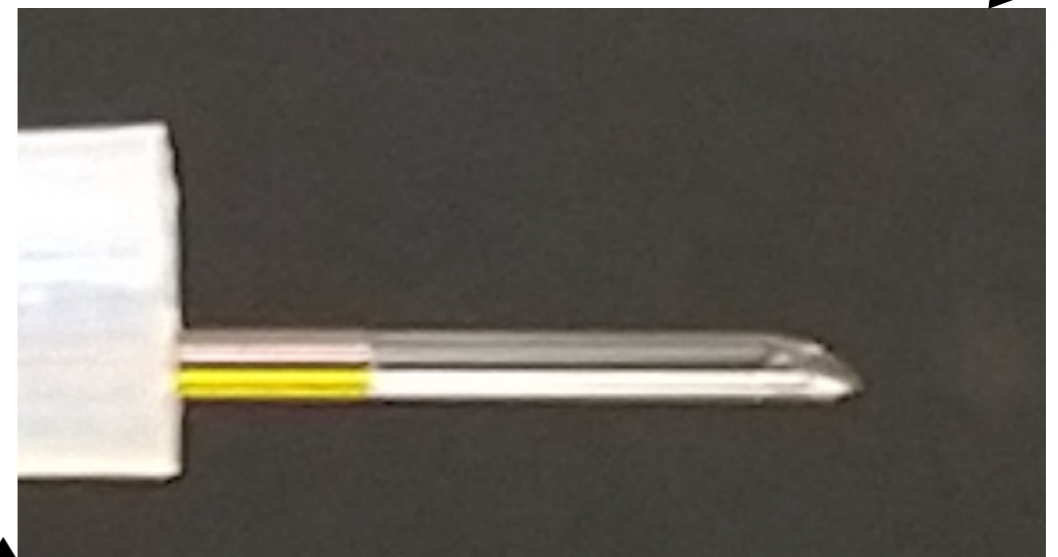
*The delivery time was long: more than 3 months. This is something we need to clarify with the vendor.

fibers have a loose PTFE jacket.

- Two sample fibers arrived from Molex/Polymicro



- Close-up of the fiber tip



- Two sample fibers arrived from Molex/Polymicro

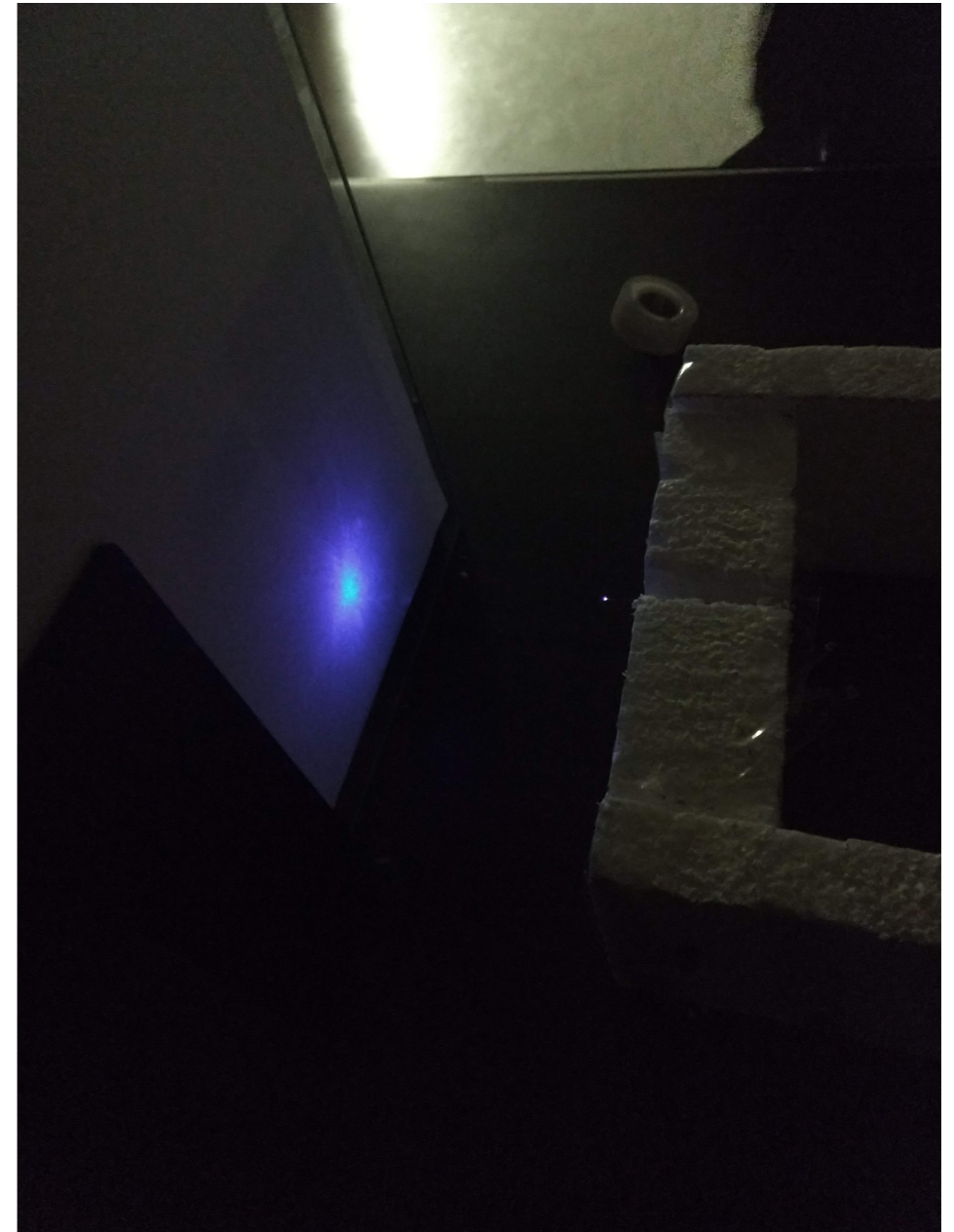


Preliminary test of the fiber

Side fire

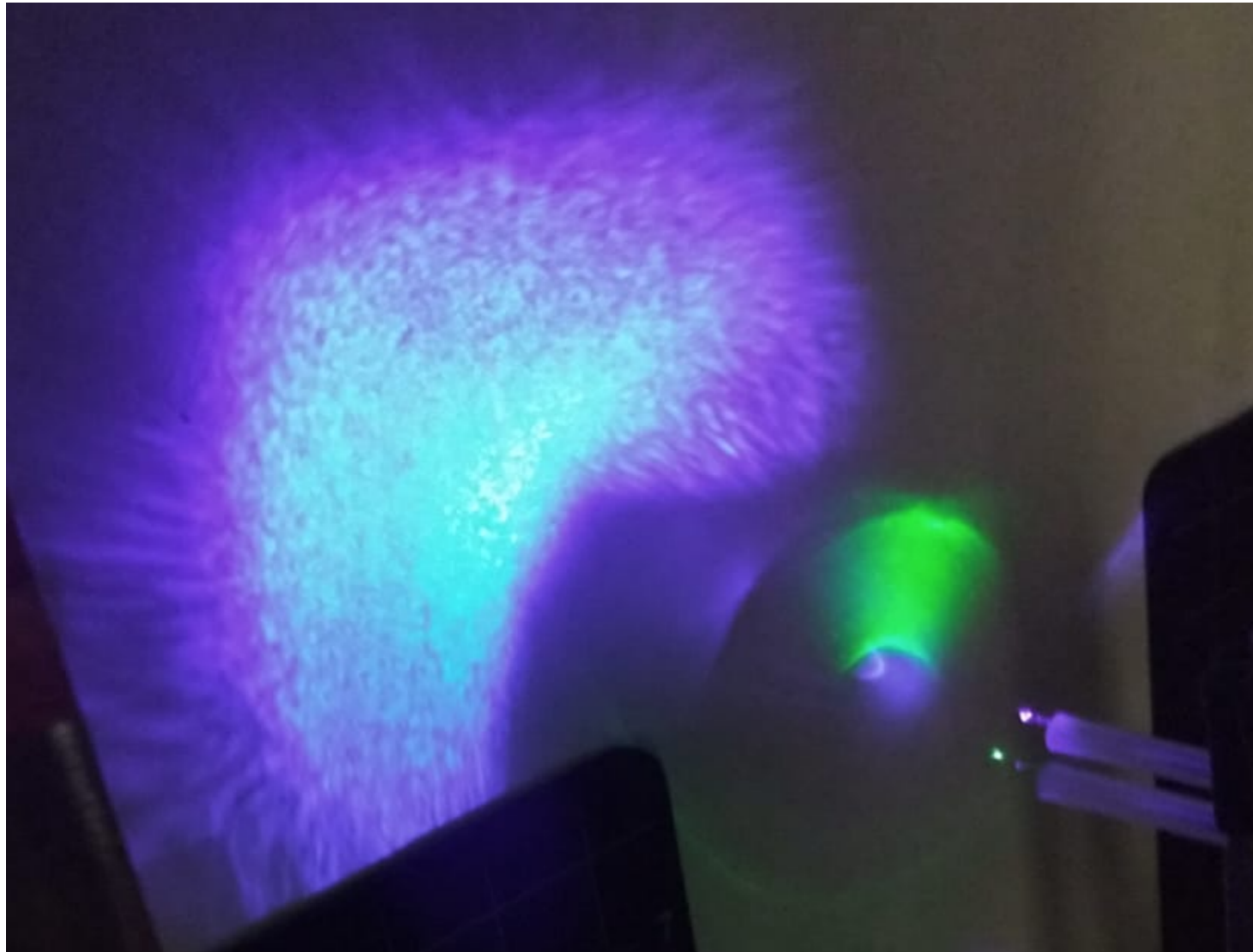


Regular fiber

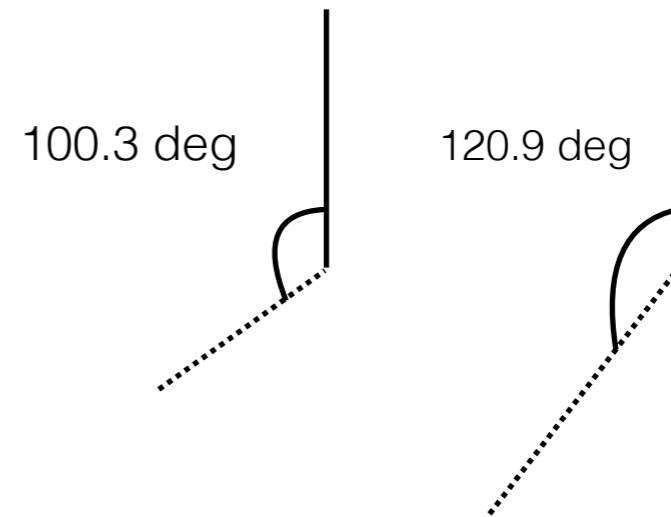


- The fiber seems to work as advertised, but we need to get the exact angles and tolerances.
- Working on a setup to test it.

Preliminary test of the fiber



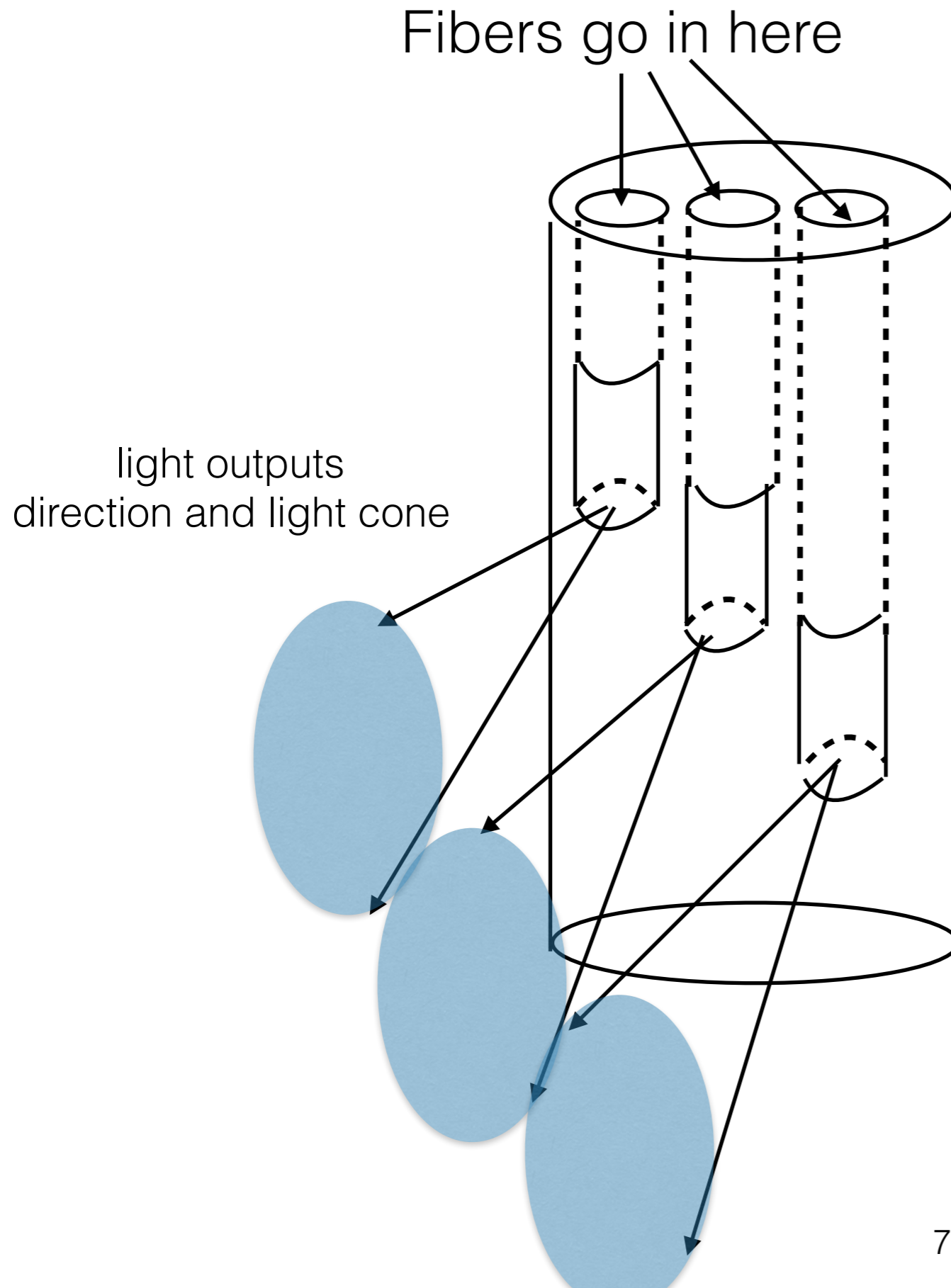
Side fire: The two different fibers show clear difference in output light angle



*The different light distribution due to alignment and the phone camera setting for blue vs green

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Ferrule/holder

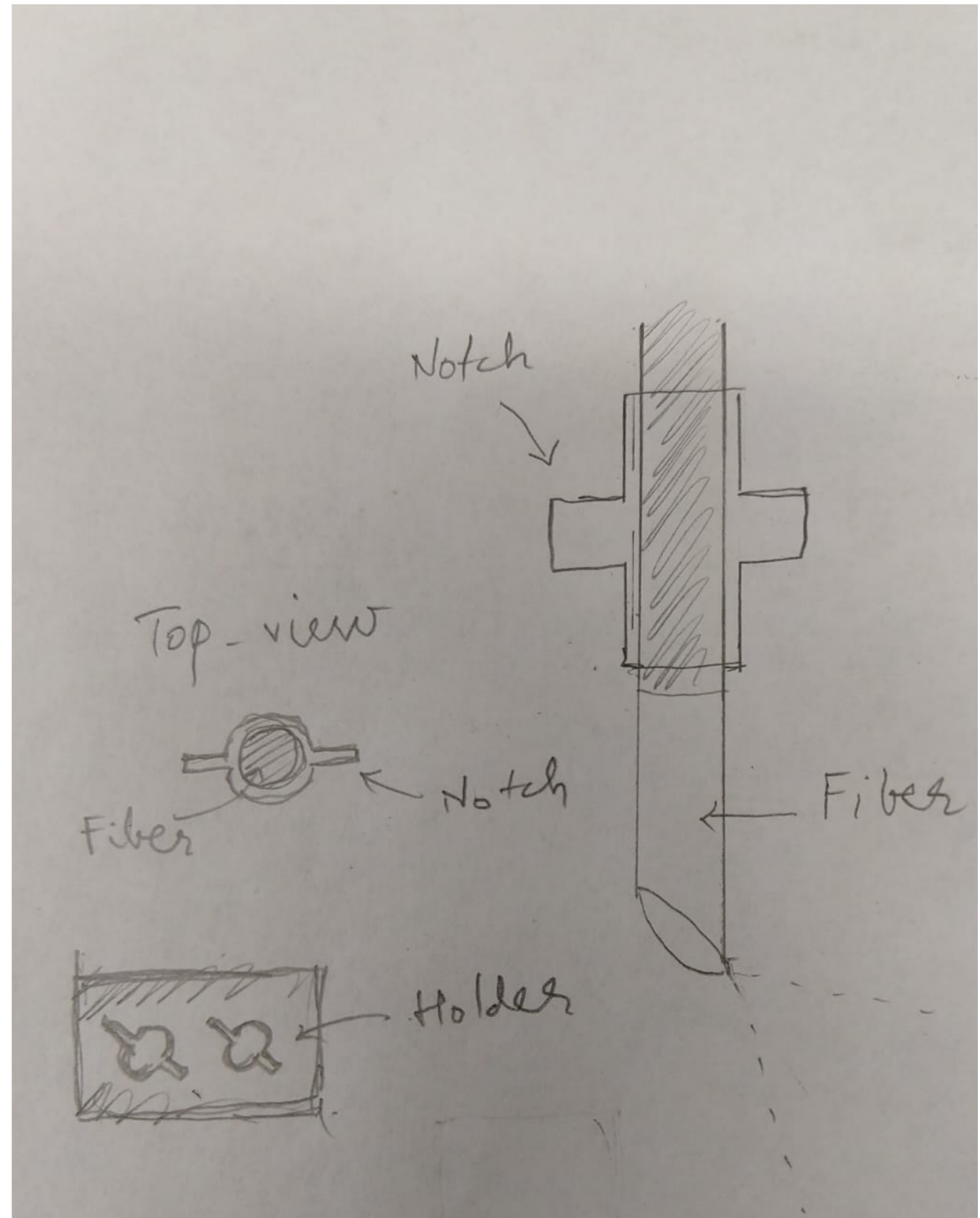


- A holder that orients the fiber exactly as we need is **key**.
- Previously had talked from optic fiber connector manufacturers. They seem not reliable for our need.

- Need a custom solution
- Spoke with a 3D printer company (UHawaii connected start-up).
- Near campus location.

Fiber holder

- Idea is to have a notch on the fiber wrt the light output.
- The notch then slides into the fiber holder, where there is an appropriate slot.
- Design a gluing setup where we can accurately attach the notch.
- Design a holder with the slots.



Work function test for Photocathodes

- Chamber, flanges and feedthroughs here.
- Decided not to test Cs coating on Al photocathode.
 - Cs is radioactive. Hence difficult to find labs/companies to make samples.
- Waiting on metal photocathode samples to arrive.
 - Al: 1mm thick 99.999% pure
 - Cu: 1mm thick 99.9 % pure
 - Ag: 1mm thick 99.99% pureFrom Advent Research Materials
- Will check how the vendor is. They also have Ni, Au, and polyamide films samples of various thickness.

