By Tibi add your name here\

Fabrication of the microfiber transducer

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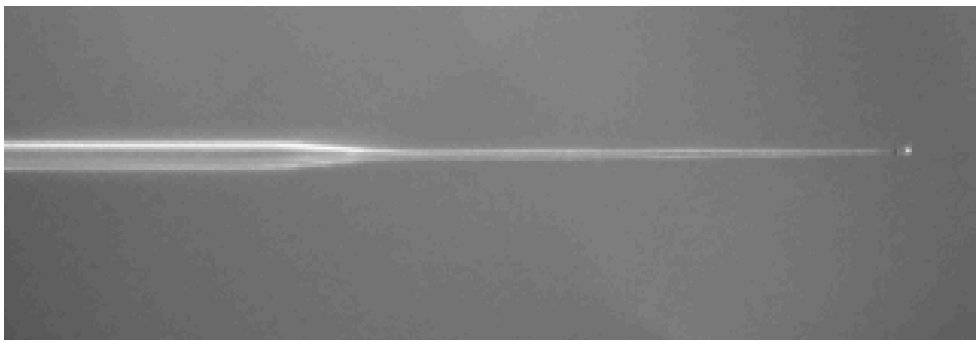

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Materials used for fabrication and procedure

Optical fiber

- Corning Infinicor300 - 125-62.5 MM, glass
- 100 microns core, glass, polyamide jacket (from Frederic)

Fabrication devices

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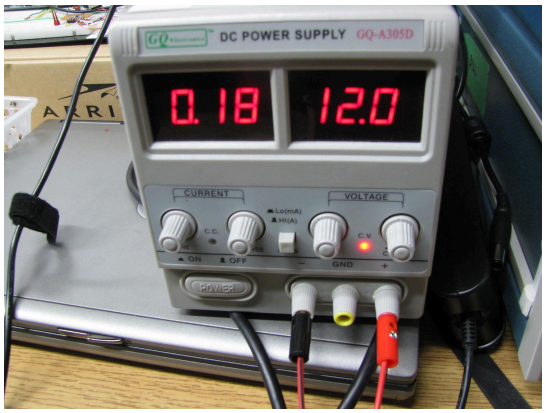
Power supply This is used to power the microsplicer. Current is set to max and voltage between 8.6 and 8.2 volts, depending on the level of heat we want to generate.	
microsplicer This is used to hit the fiber locally. The fiber is pulled using the manual micrometers. It takes some training in order to produce a uniform pull. Set the time and the current to 1, and work your way up if you need more. See Tibi.	

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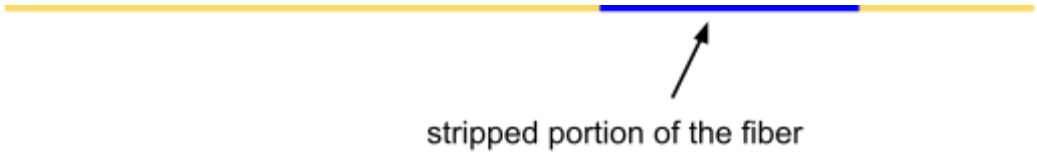
Fiber preparation

First, you need cut the right amount of optical fiber from the spool. This depends on the transducer you want to make.

Second, you need to strip a portion of the fiber.

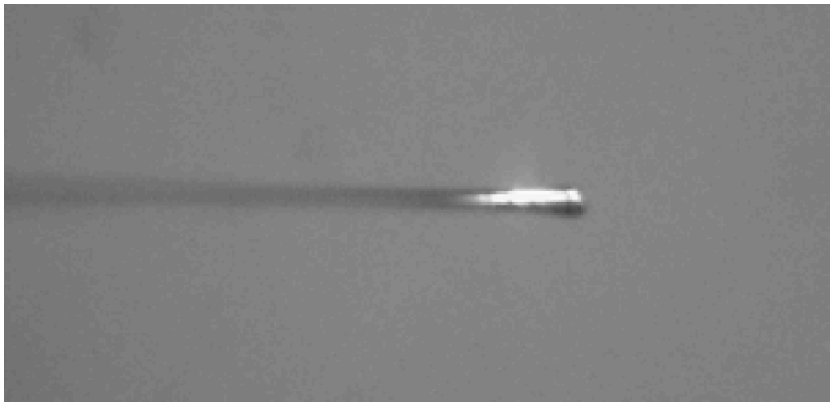
The corning fiber is striped using the fiber stripper. It is also cleaned with alcohol before it is placed into the microsplicer.

For the polyimide jacketed fiber you can use *** acid or use the microsplicer in a prefuse mode to evaporate the jacket. NOTE: striping the fiber with the microsplicer creates dust and smoke that can get on the electrodes and optics. Do not abuse...



Preparation of the tip

After having pulled the fiber, use the same plasma to pull it apart. You can discard the smaller end. For the other end you'll use the same plasma to create a small ball, by melting the tip at lower voltage (around 8V).



The round tip needs now to be silver coated, using our in house coating technique.

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We only want to coat the tip of the microfiber. First, the coating process is done on a longer portion. In order to preserve the silver coating, we coat the tip with a polymer. We have tried a 2 parts mixture optical epoxy, which dries in air and molten PCL, which is fact and very effective. The PCL doesn't dissolve in acetone and is does not react to the silver remover solution.
After coating the tip with polymer the rest of the silver is etched away using our silver remover solutions [silver remover Part A and B from AngelGilding.com].