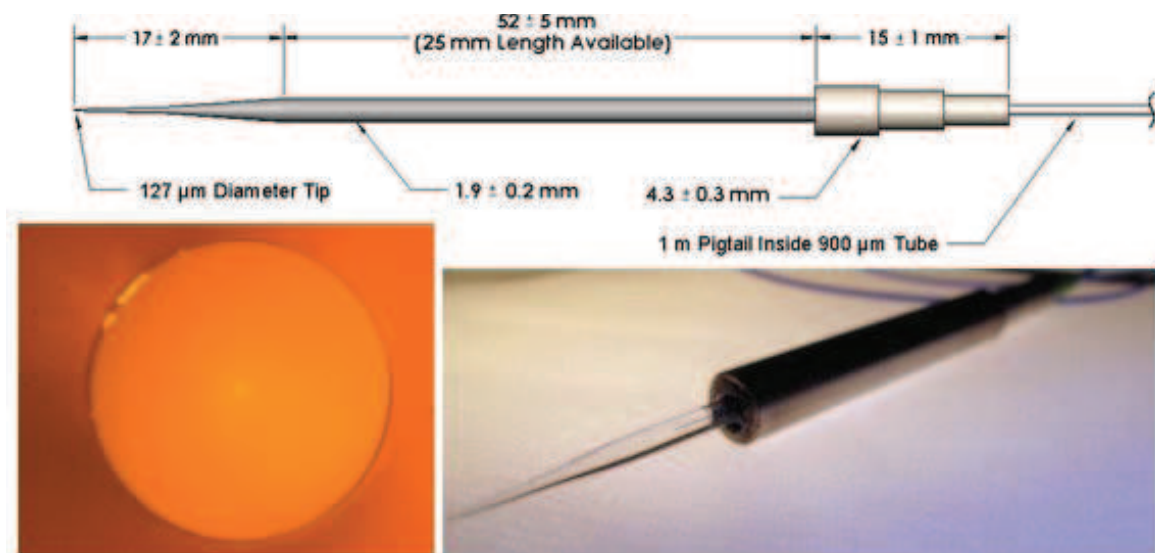


In vitro experiments

Spot Size Converting Interconnect

Designed as a telecom/datacom component, *Chiral Photonics'* spot size converting interconnect is used in slice electrophysiology experiments for localized stimulation of terminals expressing channelrhodopsin-2. A small spot size at the tapered end of the interconnect permits selective stimulation of anatomically defined areas. Fully abutted, the spot size is on the order of 1×2 microns, and remains 5-10 times smaller than the spot size out of an ordinary fiber at any distance of under 2 millimeters. The device, in addition, may also be useful for stimulation of larger areas. As spot size is inversely correlated with numerical aperture, beam divergence is approximately 10 times that of ordinary fiber.



Arrayed interconnects with multiple channels and spacing of as little as 25 microns apart are available as well. These arrays may be useful for multipoint stimulation in order to address different brain structures within the same subject. It may also be possible to configure arrays that act as hybrid devices, with certain fibers stimulating while others photodetect. Such usage, however, requires prior genetic targeting of a reporter to the same neurons that express the opsin.

Additionally, for local connectivity study it may also be possible to configure hybrid arrays that detect activity in excited cells. In such an array, one fiber stimulates a cell expressing the opsin while another would detect a cell expressing the reporter excited by the first cell. In this case, usage demands that the opsin and reporter be driven by distinct promoter systems.

ORDERING CODE : SSCI

The fiber is 1 meter long, with FC connector as input.