

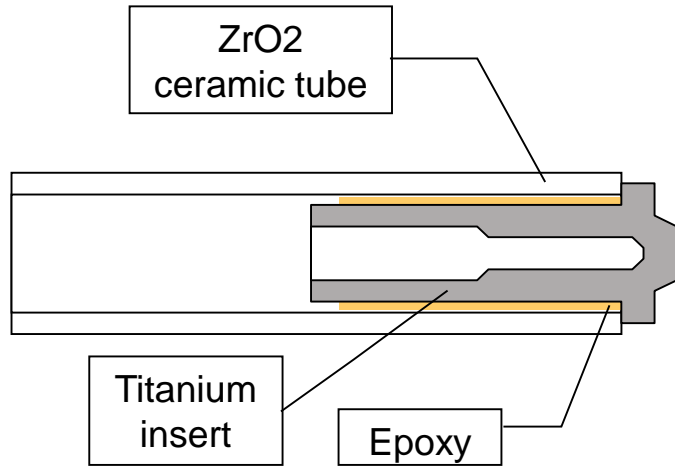


Multi-Fiber 2.5mm base ferrule

For Sensors, Medical, Space and Aeronautics custom applications



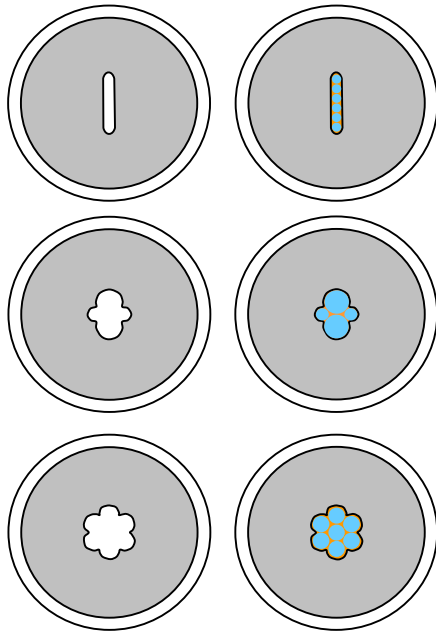
Ferrule base Technology



- Ceramic – Titanium insert ferrule
- Available on all standard connector
- Preferably used with simple DMI compact connector
- Requires orientation capability similar as PM connectors



Custom Ferrule hole drilling



- Ceramic-Titanium insert ferrule
- Metal monobloc ferrule upon request (stainless steel)
- Any shape size for 50 μ m to 600 μ m fiber available
- Shape form accuracy <3 μ m
- Shape form concentricity <5 μ m



Features and Benefits

■ Features

- Accurate shapes
- Customizable shape for custom fibers
- Small CTE (7-10ppm/°C)

■ Benefits

- Compactness
- Use of standard connectors and processes
- Cost effective



Hyper spectral imaging in Space

Each pixel of an image are measured through a spectrometer

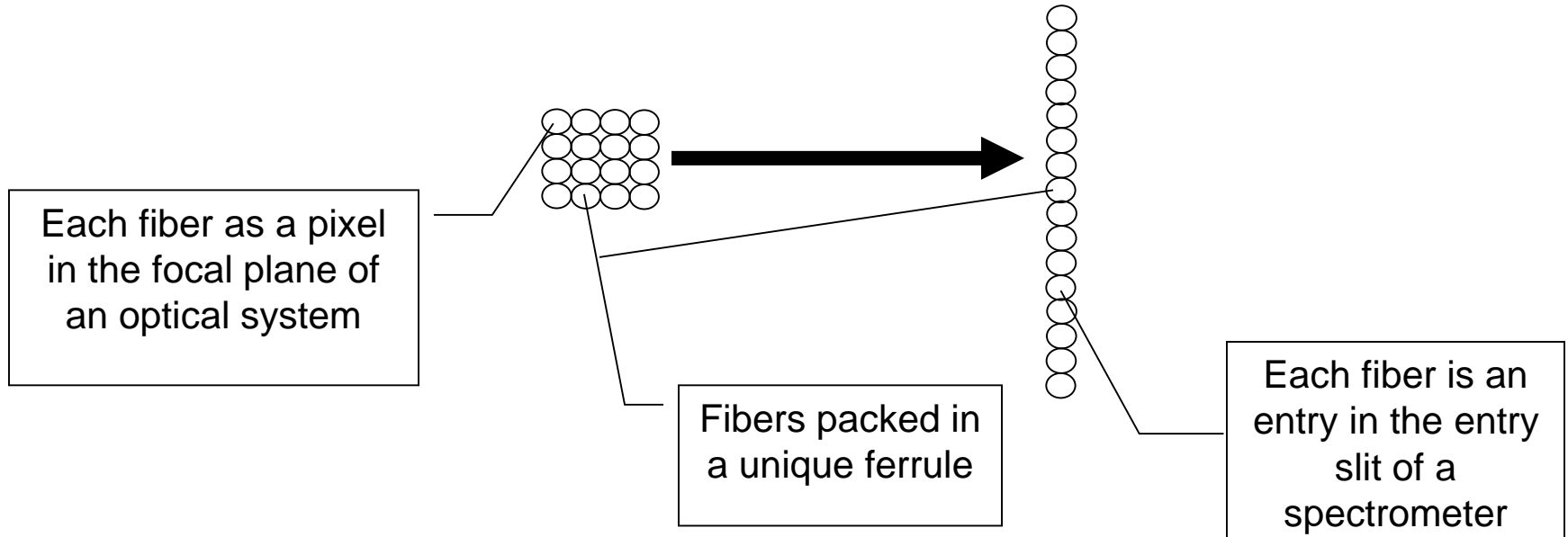
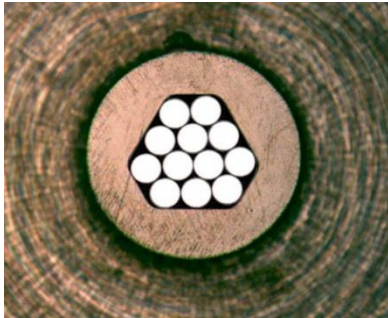


Image side



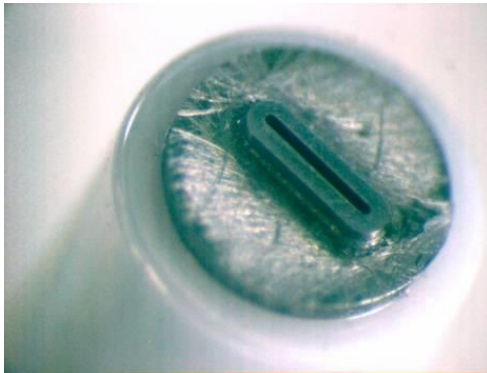
- Shape drilled to snugly fit 12 custom 70/77 fibers
- Shaped built to specification within microns of specs



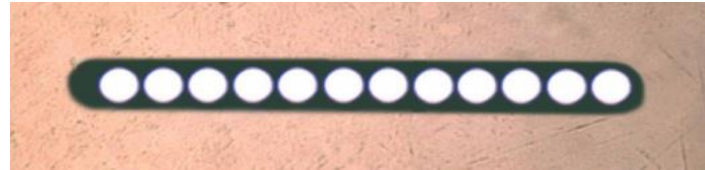
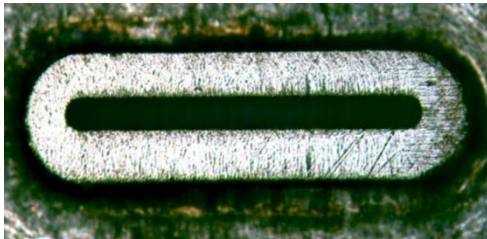
12x hex. fibers



Spectrum Analyzer side



- Shaped extremely difficult. Slit of $80\mu\text{m}$ width achieved with few microns accuracy
- Designed for 12 fibers $70/77\mu\text{m}$



12x in-line fibers

Project: NASA LRO - LOLA

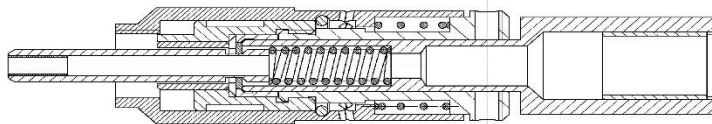
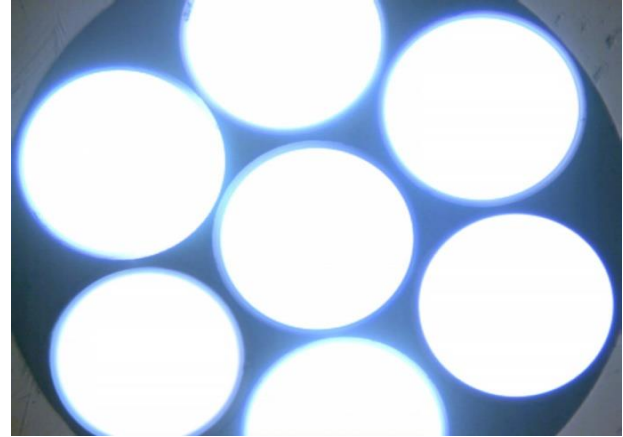
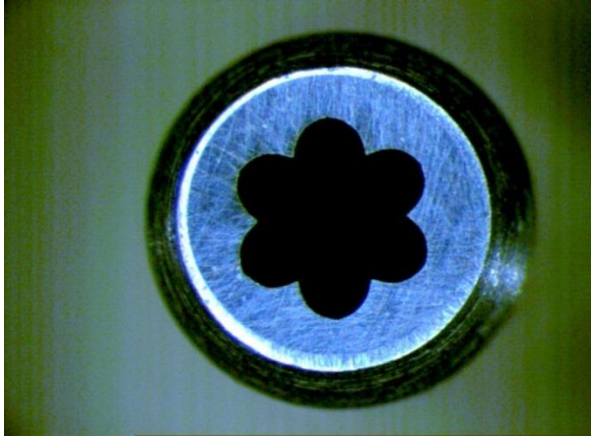


Developed for Melanie Ott, Photonics groups,
NASA - Goddard SFC

- NASA Requirements
 - Multi-fiber (used for redundancy)
 - AVIM® connector (long history in space)
 - Seven large core fibers
 - Orientation adjustable

- Diamond Solution
 - AVIM® PM in Stainless steel
 - PM for rotational adjustments to orient the seven fibers with set screws
 - Complete connector and custom ferrules built in several weeks
 - Ferrule in low CTE Stainless steel

Large core 7ch Low CTE steel ferrule




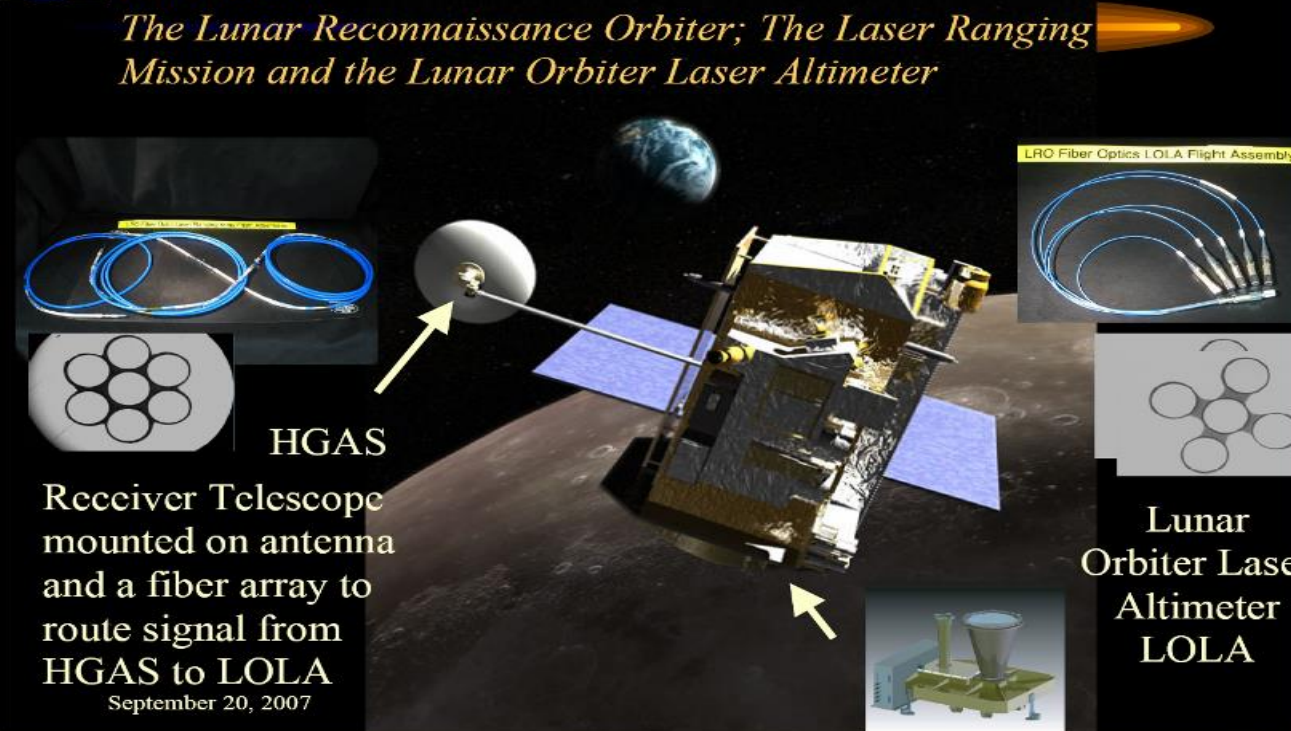
Custom AVIM® for alignment capabilities



<http://photonics.gsfc.nasa.gov> for more



 *Introduction*
The Lunar Reconnaissance Orbiter; The Laser Ranging Mission and the Lunar Orbiter Laser Altimeter



HGAS
Receiver Telescope mounted on antenna and a fiber array to route signal from HGAS to LOLA

LRO Fiber Optics LOLA Flight Assembly

Lunar Orbiter Laser Altimeter LOLA

September 20, 2007

Duplex Ferrule



- Custom application
- Telecom FTTx application
- MM validated
- SM in progress

