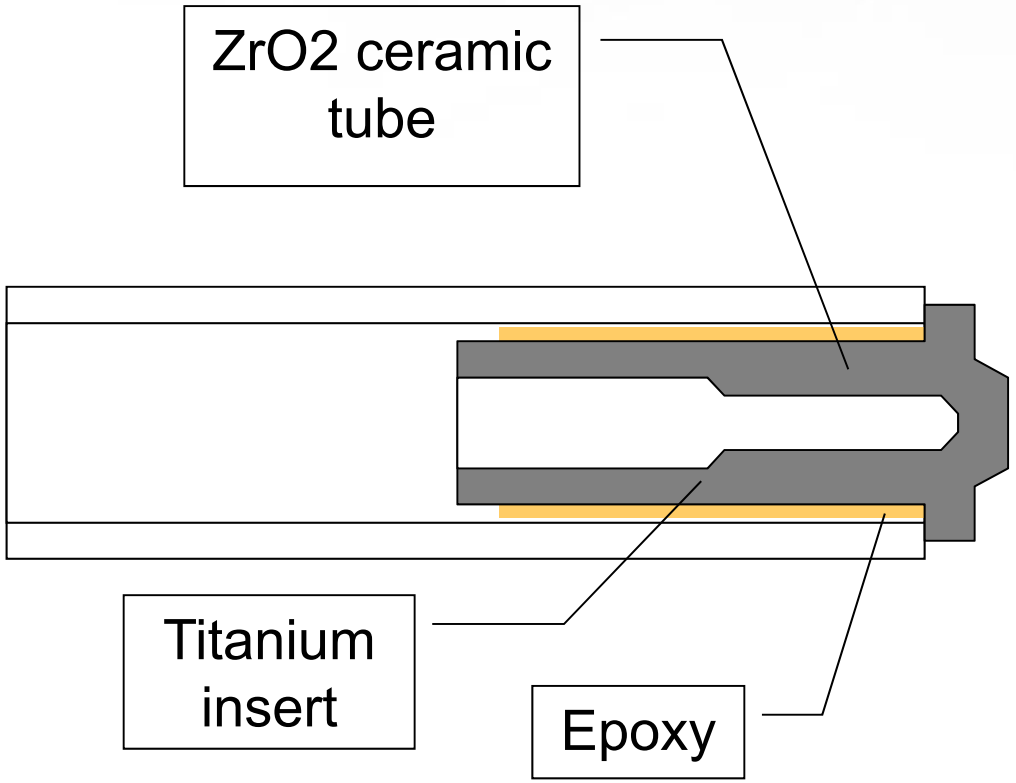
Multi-Fiber 2.5mm based ferrule

For Sensors, Medical, Space and Aeronautics custom applications

DIAMOND
the fiber meeting

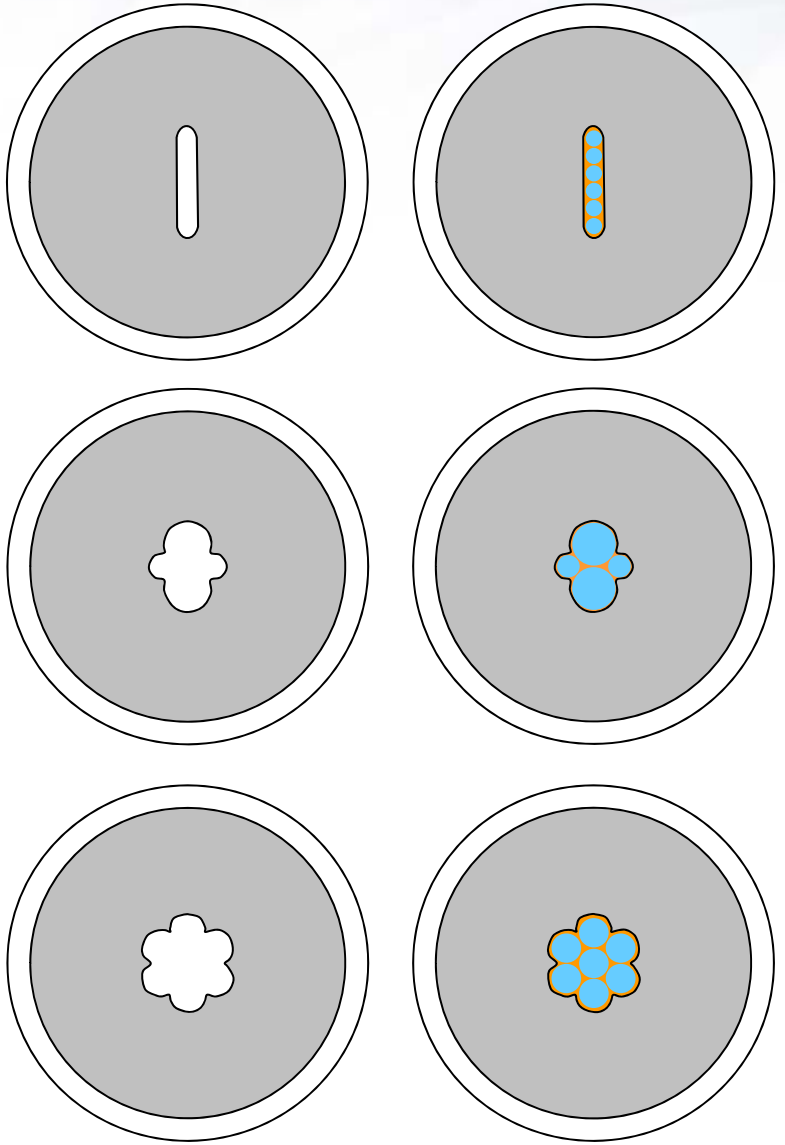
Ferrule base Technology

- 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

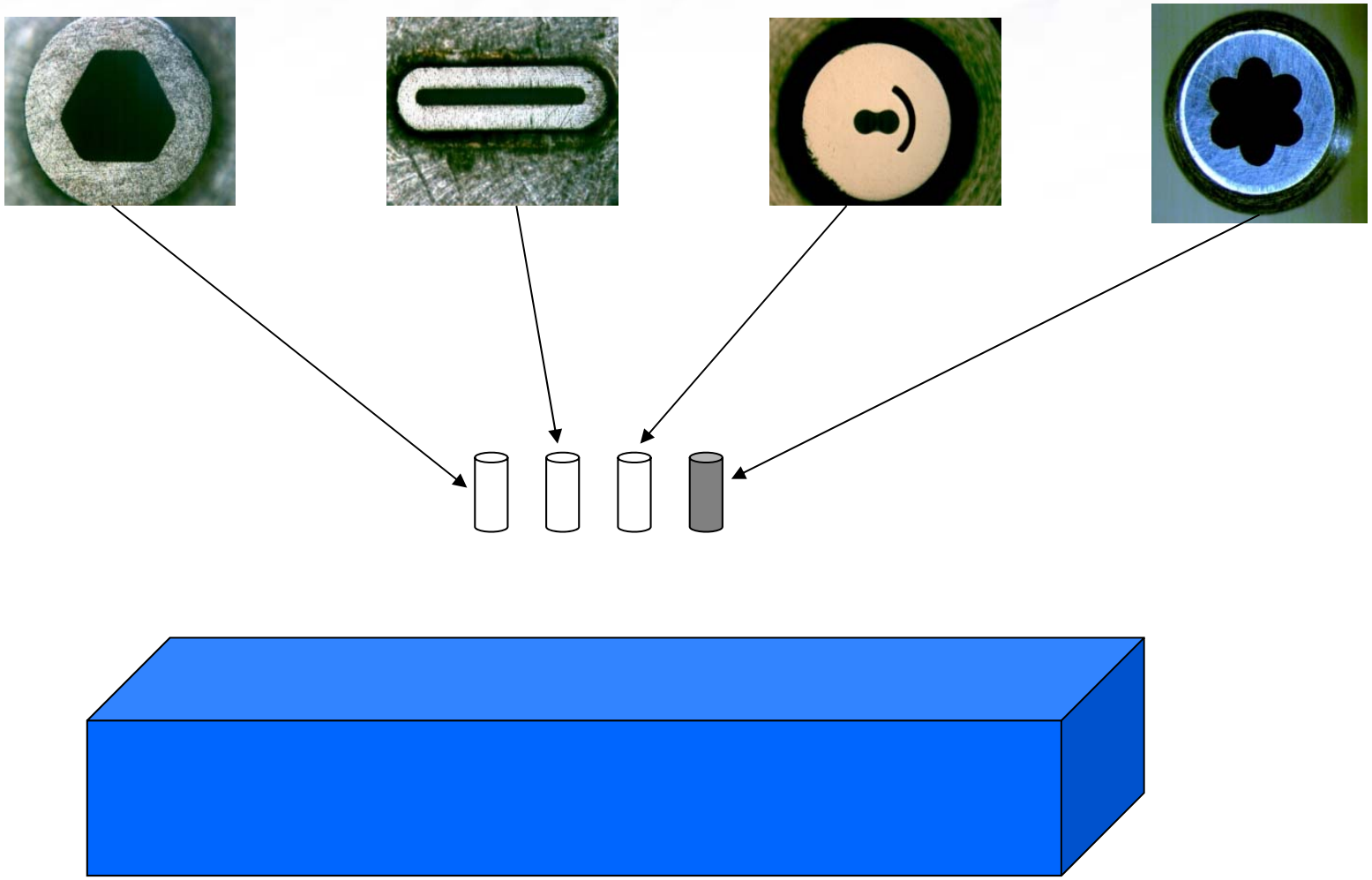
- Ceramic-Titanium insert ferrule
- Metal monobloc ferrule upon request (stainless steel)
- Any shape size for 50µm to 600um fiber available
- Shape form accuracy <3µm
- Shape form concentricity <5µm



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

Example of realization



Hyper spectral imaging in Space

- Each pixel of an image are measured through a spectrometer

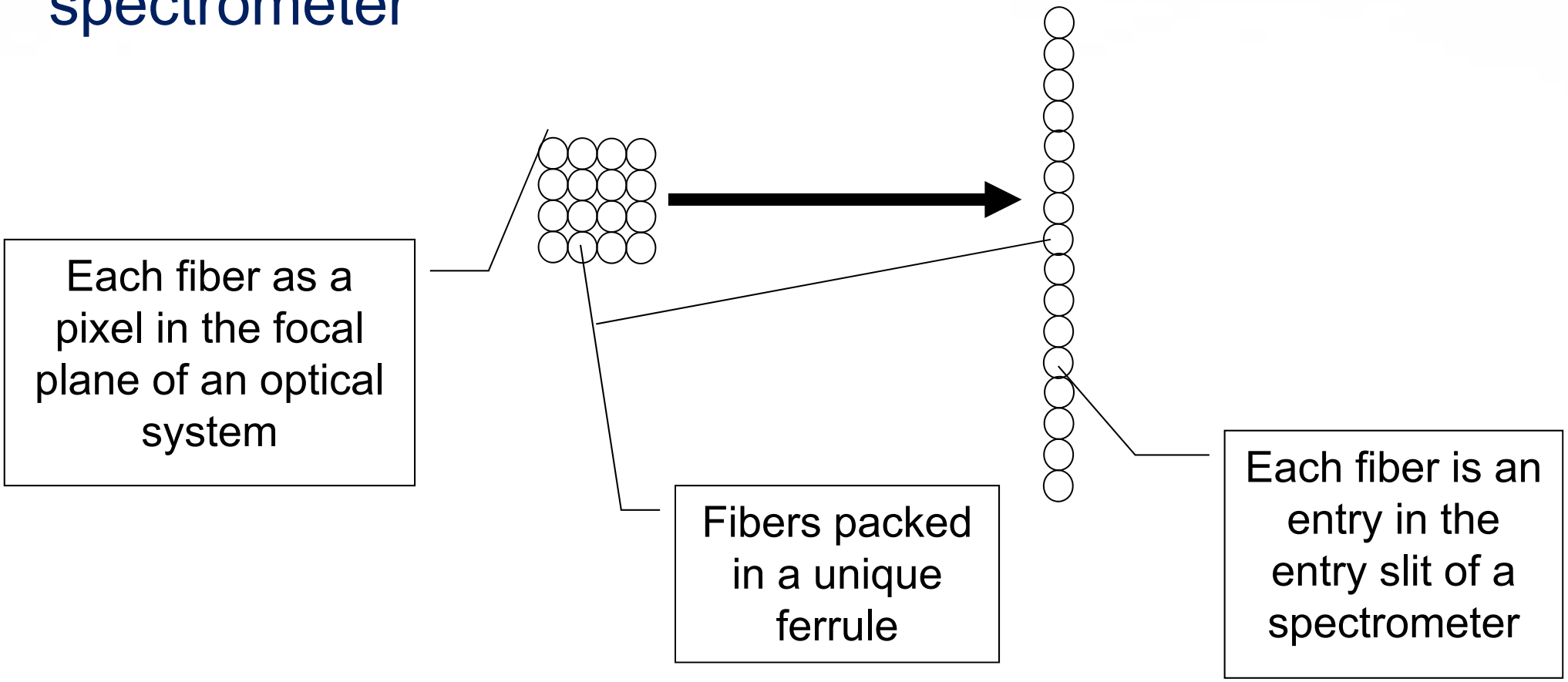
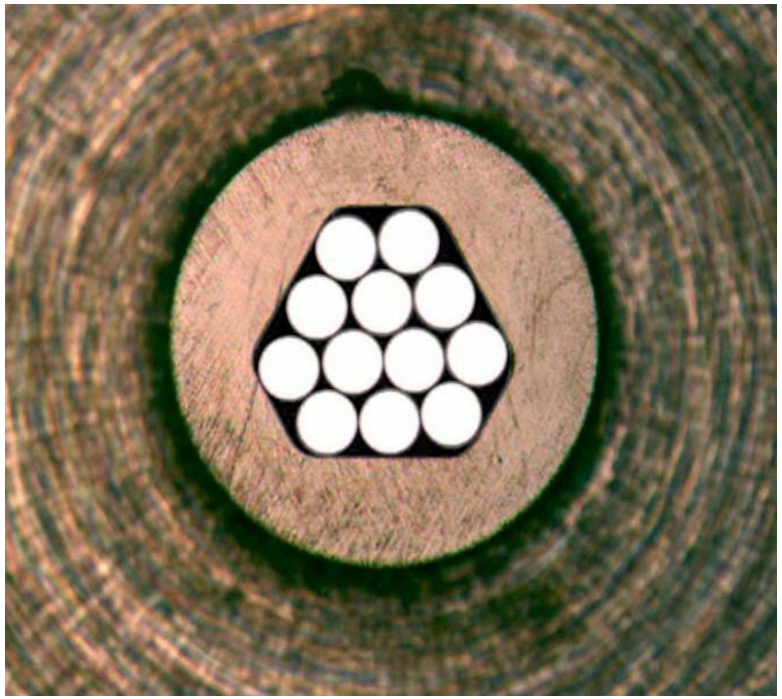


Image side

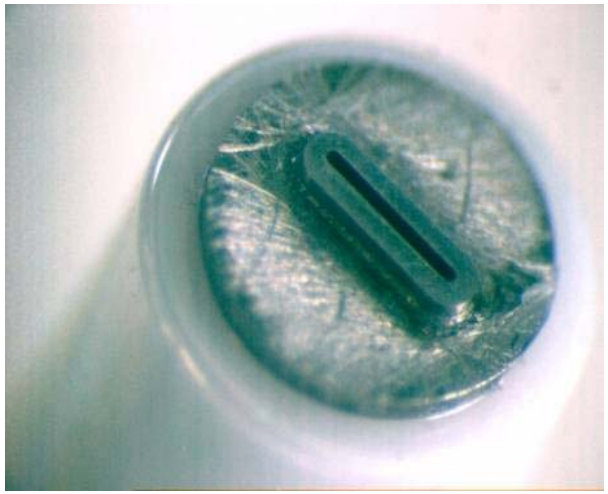
- Shape drilled to snugly fit 12 custom 70/77 fibers
- Shaped built to specification within microns of specs

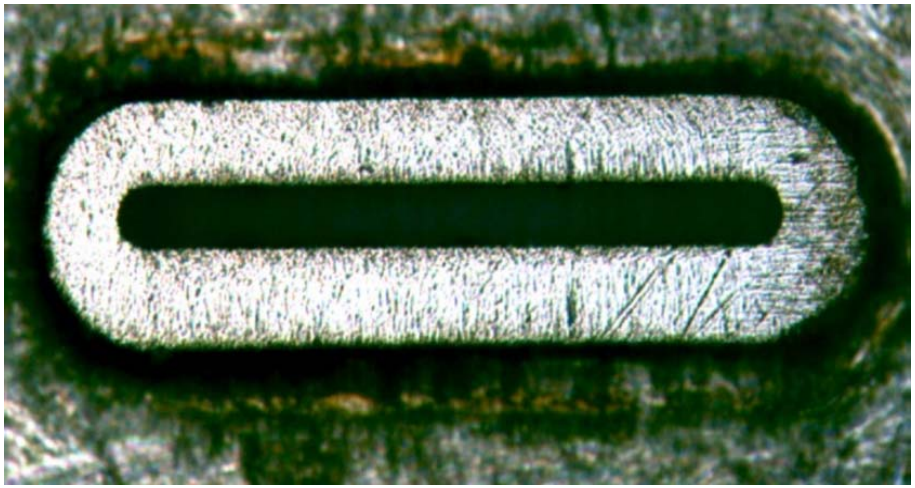


12x hex. fibers

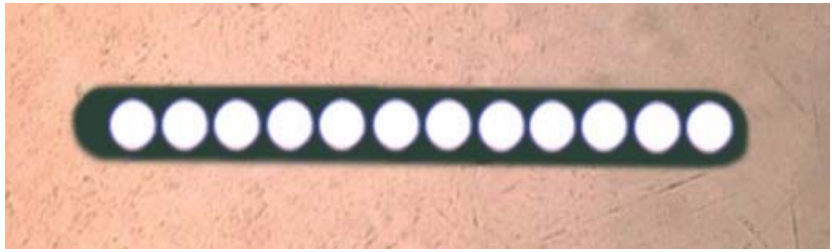
Spectrum Analyzer side

- Shaped extremely difficult. Slit of 80µm width achieved with few microns accuracy
- Designed for 12 fibers 70/77µm



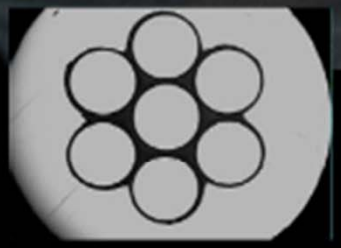


12x in-line fibers



Introduction

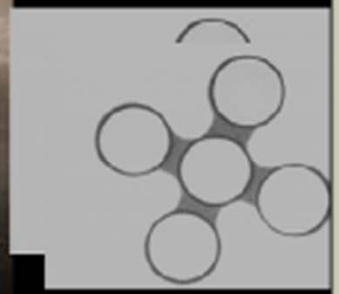
The Lunar Reconnaissance Orbiter; The Laser Ranging Mission and the Lunar Orbiter Laser Altimeter



HGAS

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

September 20, 2007



Lunar Orbiter Lase Altimeter LOLA

http://misspiggy.gsfc.nasa.gov/photonics for more

Project: NASA LRO - LOLA

NASA Requirements

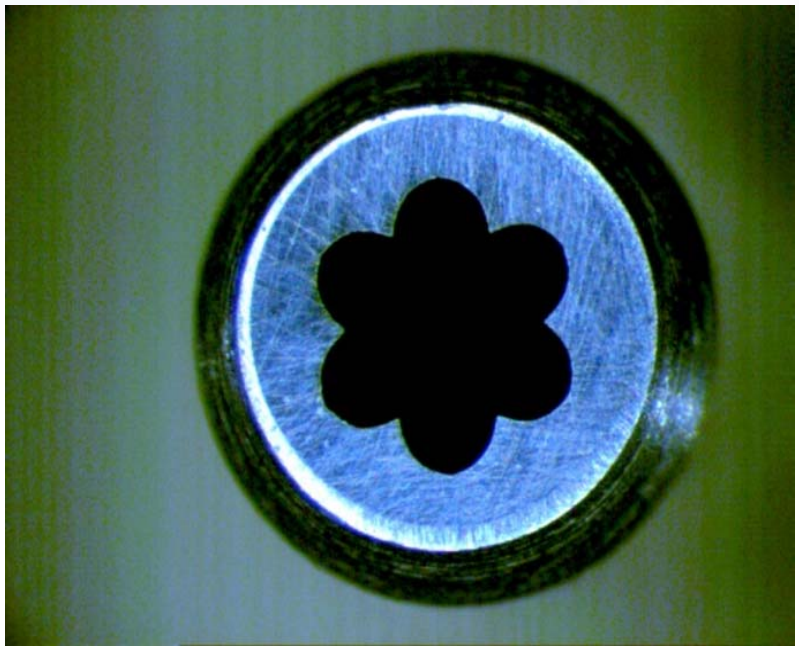
- Multi-fiber (used for redundancy)
- AVIM connector (long history in space)
- Seven large core fibers
- Orientation adjustable

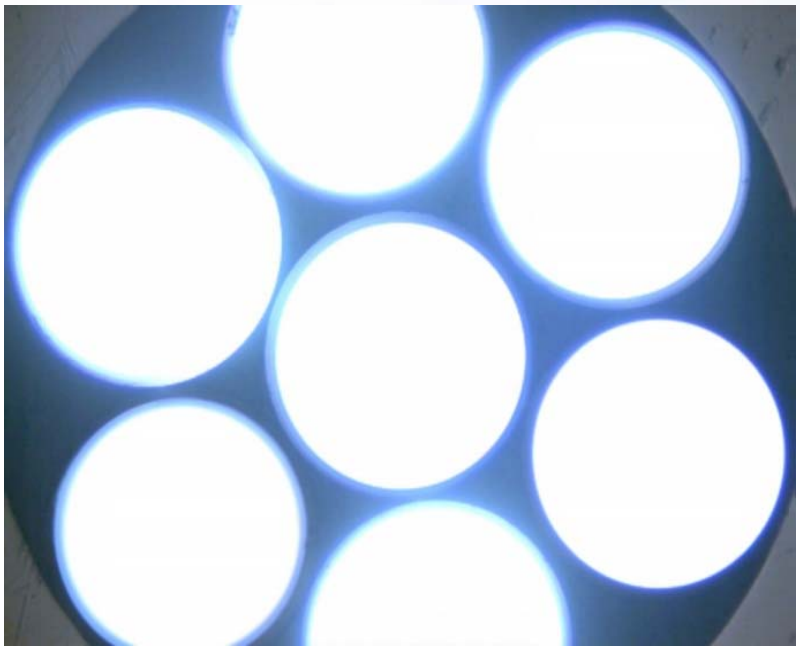
Developed for Melanie Ott, Photonics groups, NASA - Goddard SFC

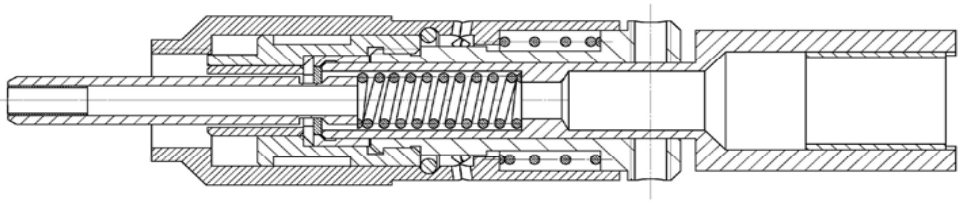
Diamond Solution

- 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

Duplex Ferrule

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