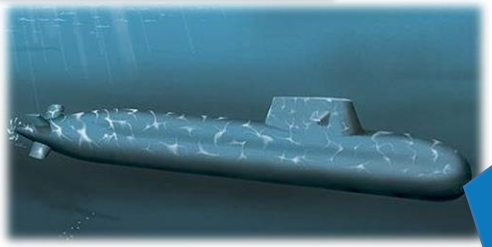
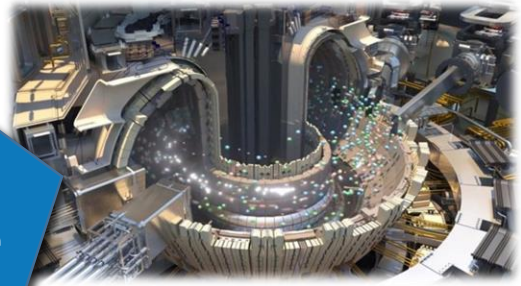
Somni

fiber optic sensor systems

SOMNI – FIBER OPTIC SENSORS





SHM

Defence

SOMNI sensors & systems

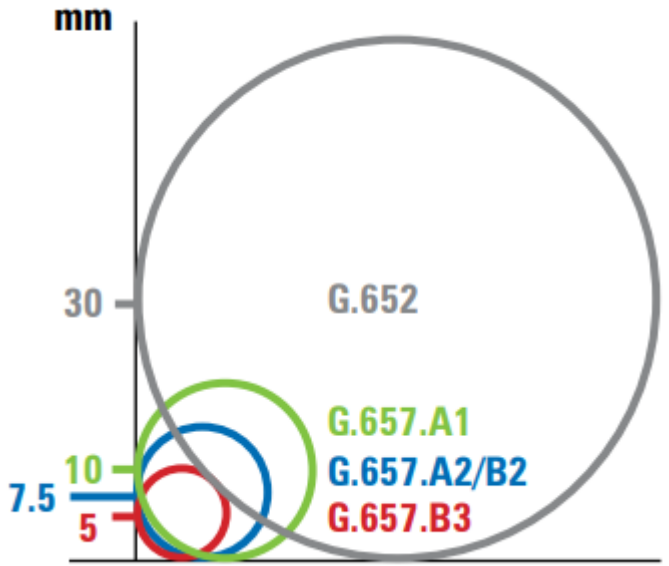
Science

Medical

Railway

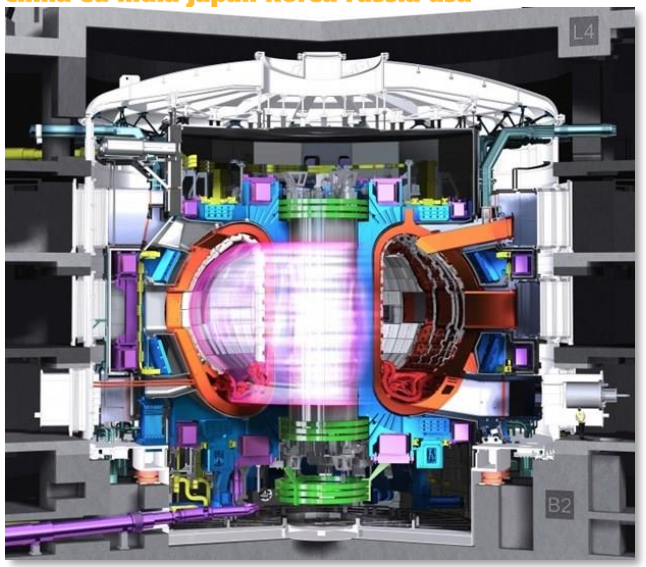
USE OF SPECIALTY FIBERS

- Minimize bend losses → Bend insensitive fiber
- ITU-T G657.A2/B2 compatible fiber



ACCELEROMETERS AND TEMPERATURE SENSORS

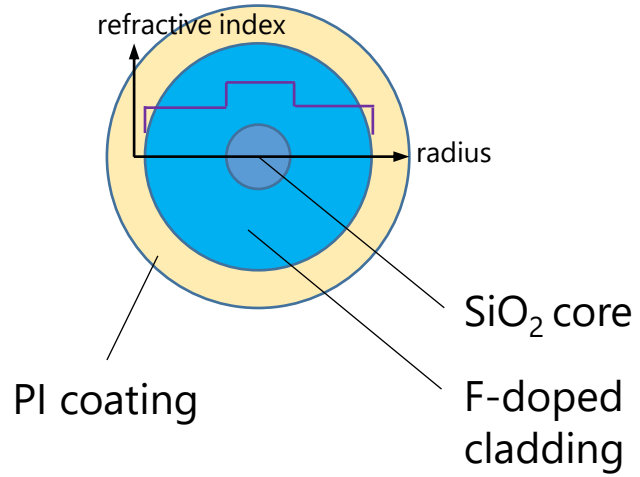
- Small temperature sensor (∅ 3mm)
- Operating temperature 20°C - 300 °C
- Radiation hard
- Vacuum compatible



- Modified AC 1-ax 80 NT
- Max operating temperature 170 °C
- Radiation hard
- Vacuum compatible

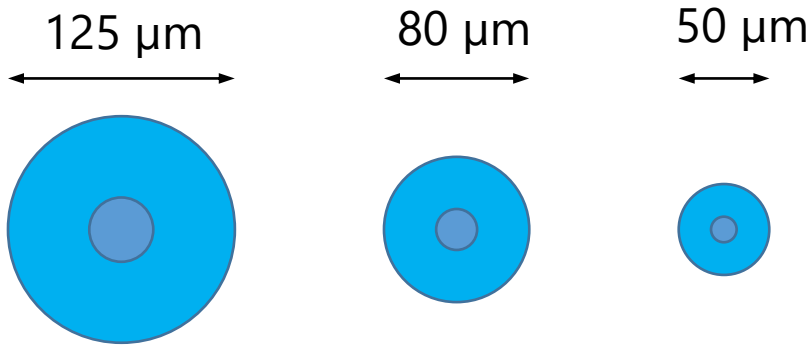
SPECIALTY FIBER: RADIATION HARD

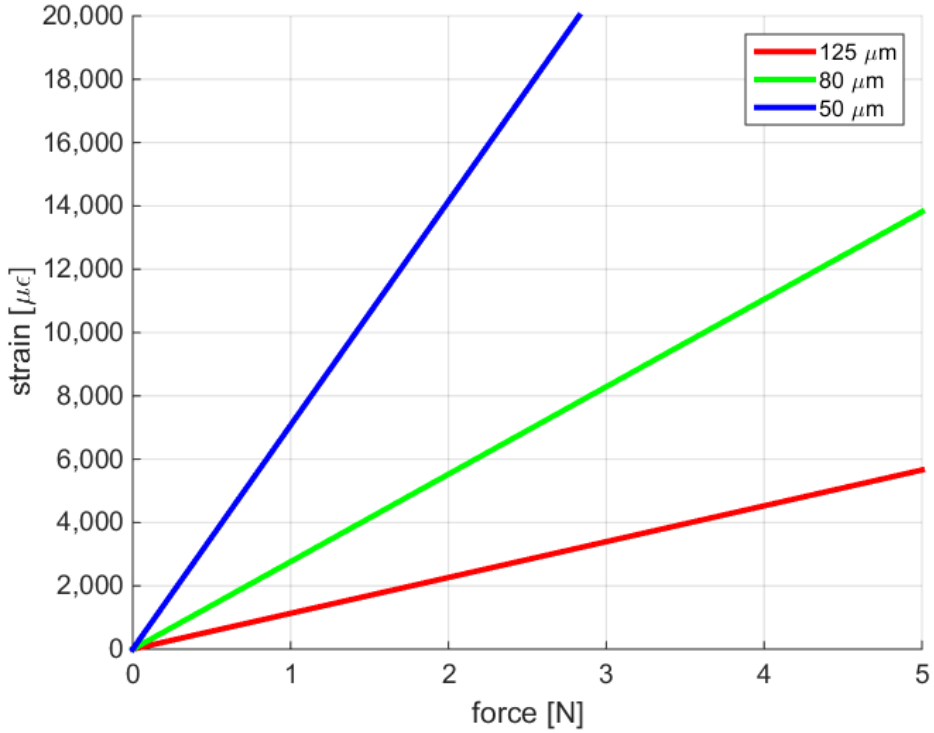
- Minimize Radiation Induced Absorption → pure silica core radiation hard fiber
- Drawbacks:
  - Not bend insensitive
  - Larger sensor to accommodate large bend radius



SMALL DIAMETER FIBERS

Customers are asking for smaller sensors. Are there opportunities for small diameter fibers?

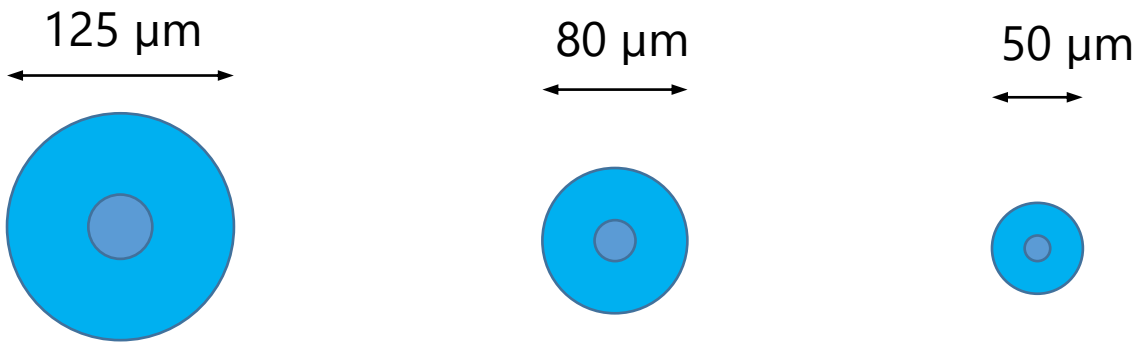




More signal (strain) with equal amount of Force!

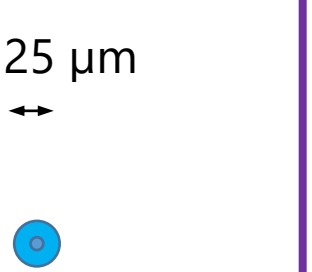
SMALL DIAMETER FIBERS

Commercially available:



Increase in sensitivity: **2.44×** **6.25×**

Somni development:



25×

PROCESSING SMALL DIAMETER FIBERS

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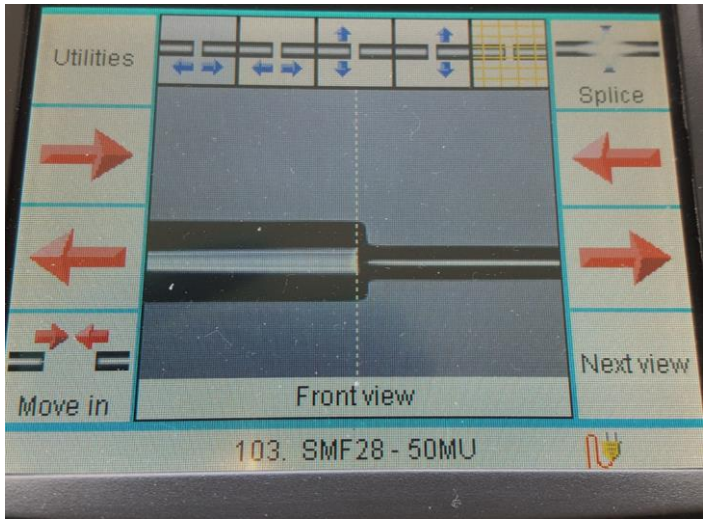
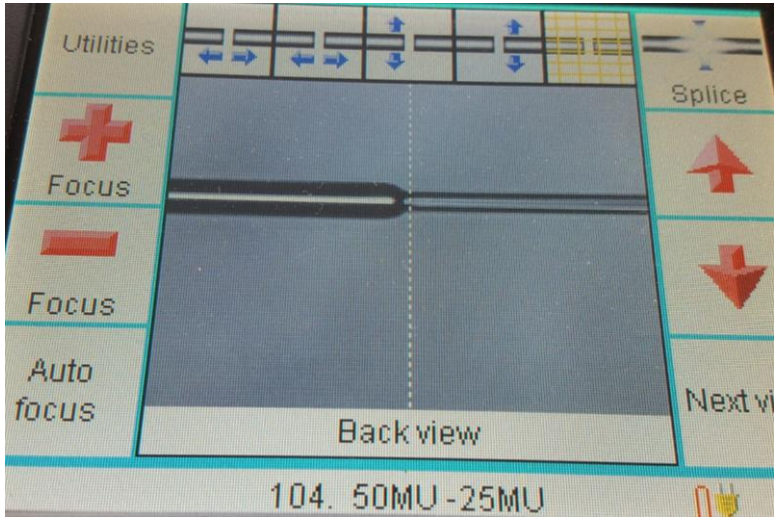
Fiber handling issues:

- Stripping (Acrylate / PI)
- Cleaving
- Splicing
- FBG manufacturing





https://www.youtube.com/watch?v=Cw2jWt3ccCs

THANK YOU!

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