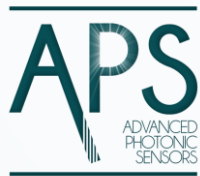




Les multiples facettes des capteurs à fibres optiques

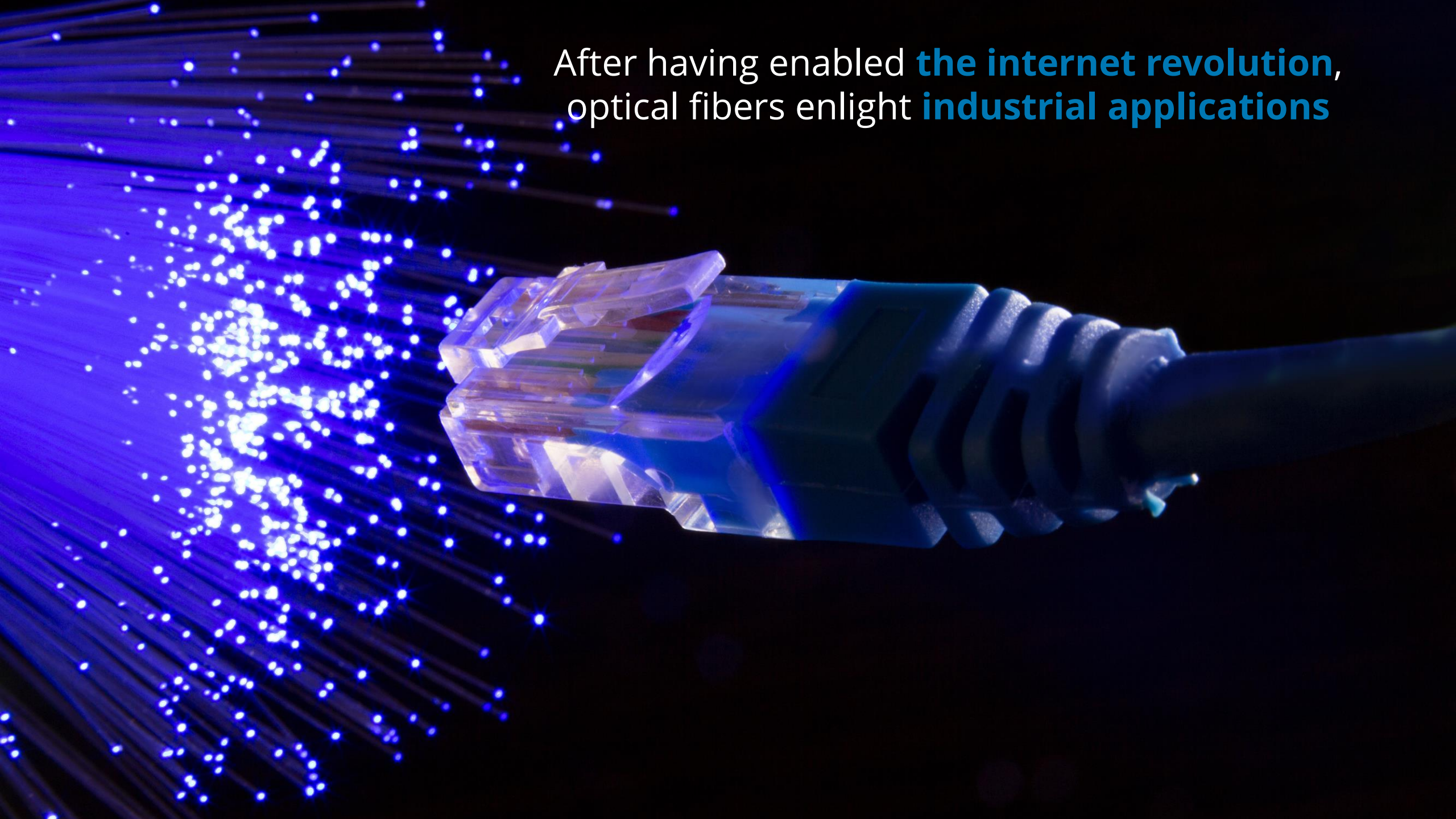
Christophe Caucheteur



Boulevard Dolez 31
7000 Mons (Belgium)
www.umons-aps.be



After having enabled **the internet revolution**,
optical fibers enlight **industrial applications**



Advanced Photonic Sensors at

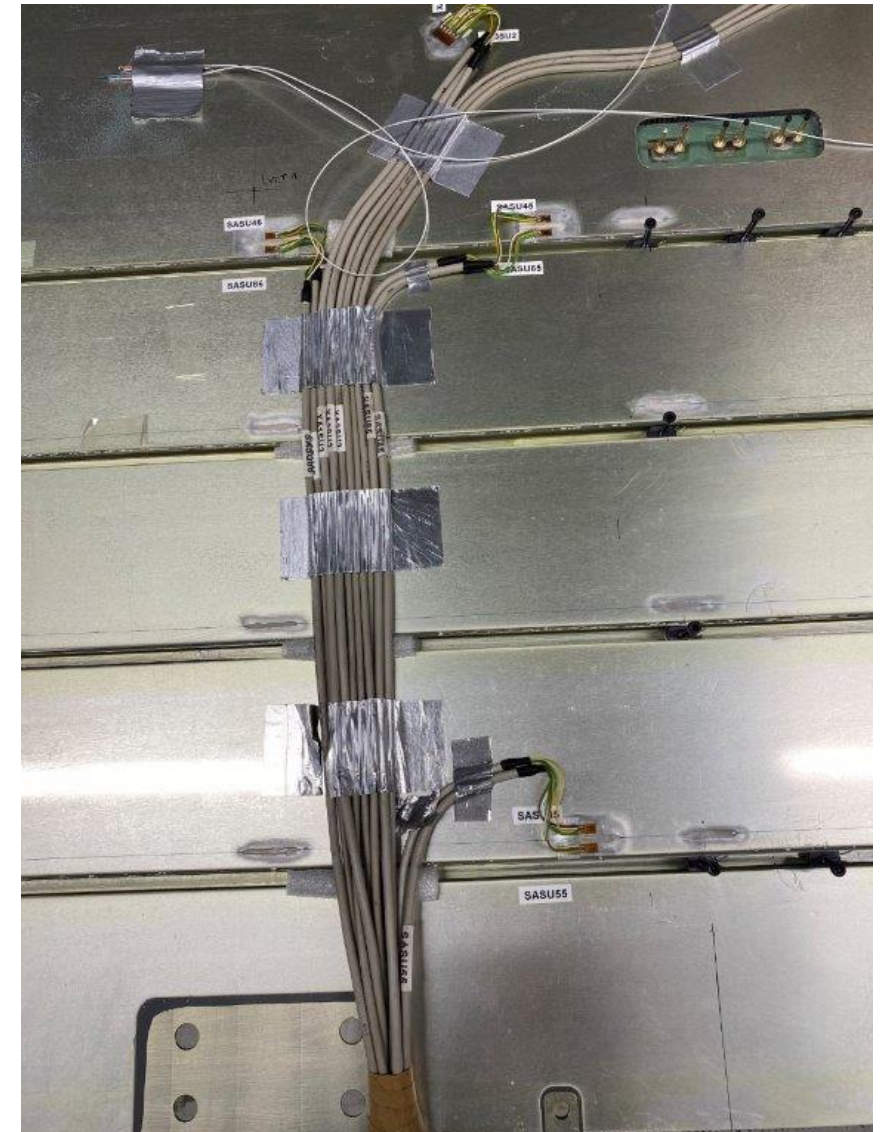
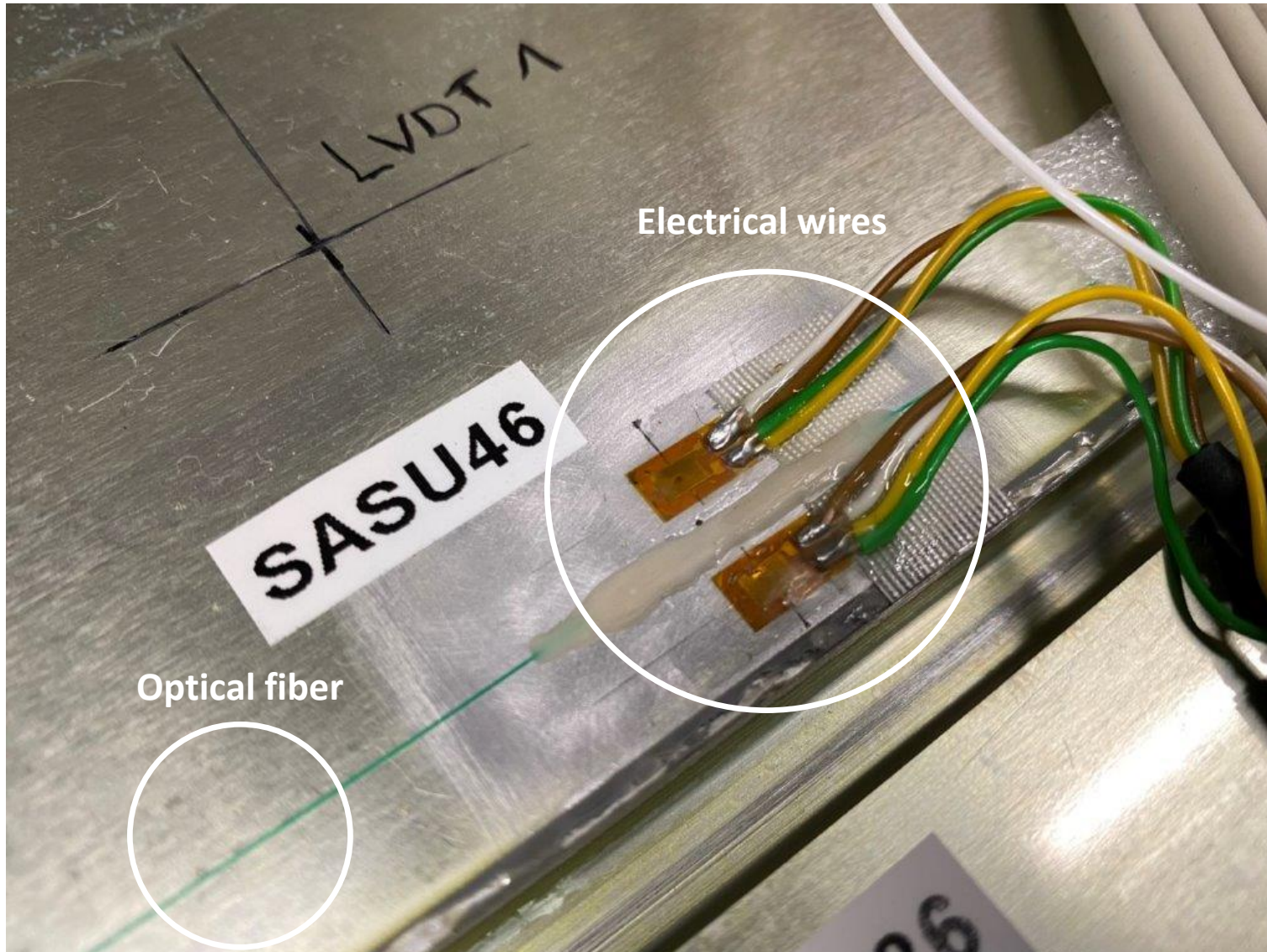
More than **20 year R&D expertise**

Study and development of **optical fiber sensing solutions**

Active in **various sectors**



A single optical fiber replaces tens/hundreds of electrical cables

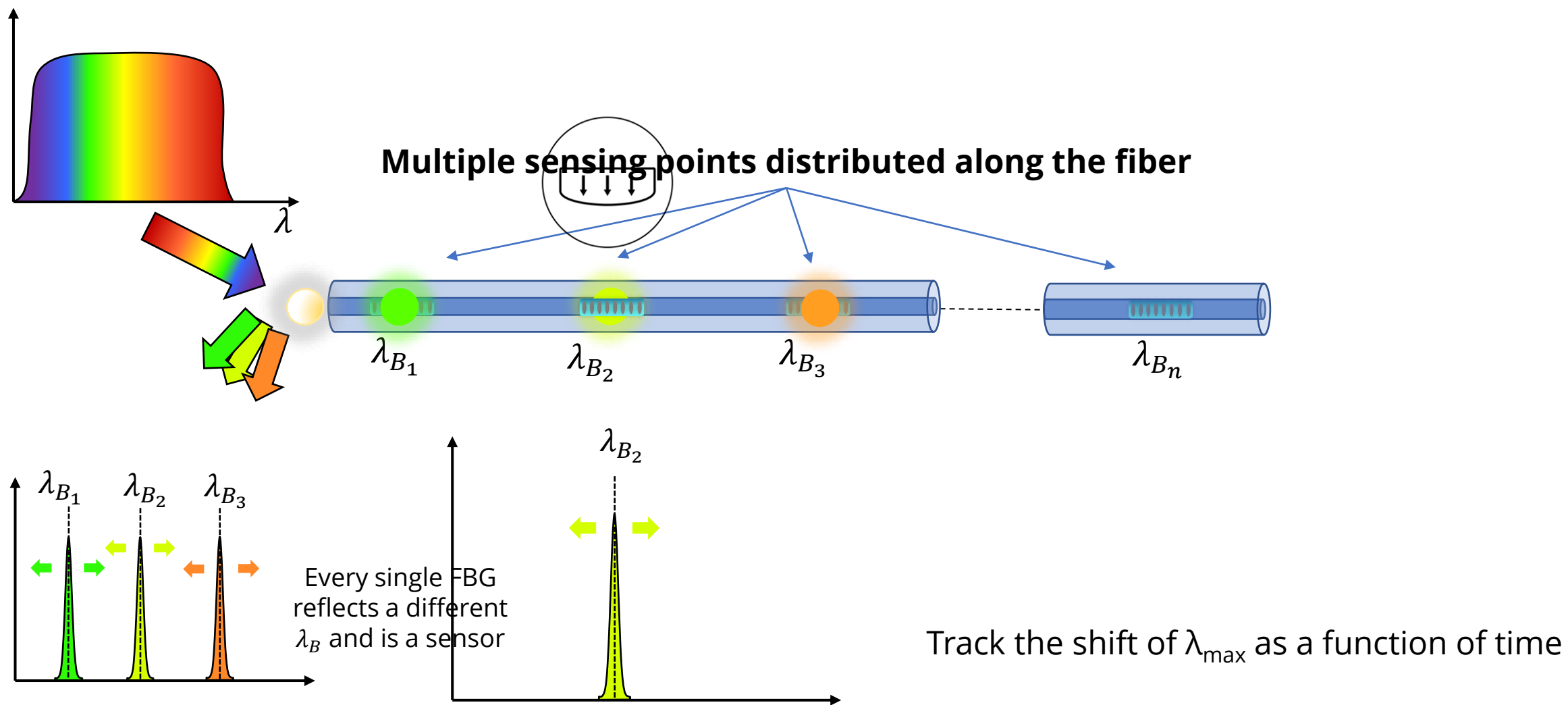


The **Fiber** is the **Sensor**

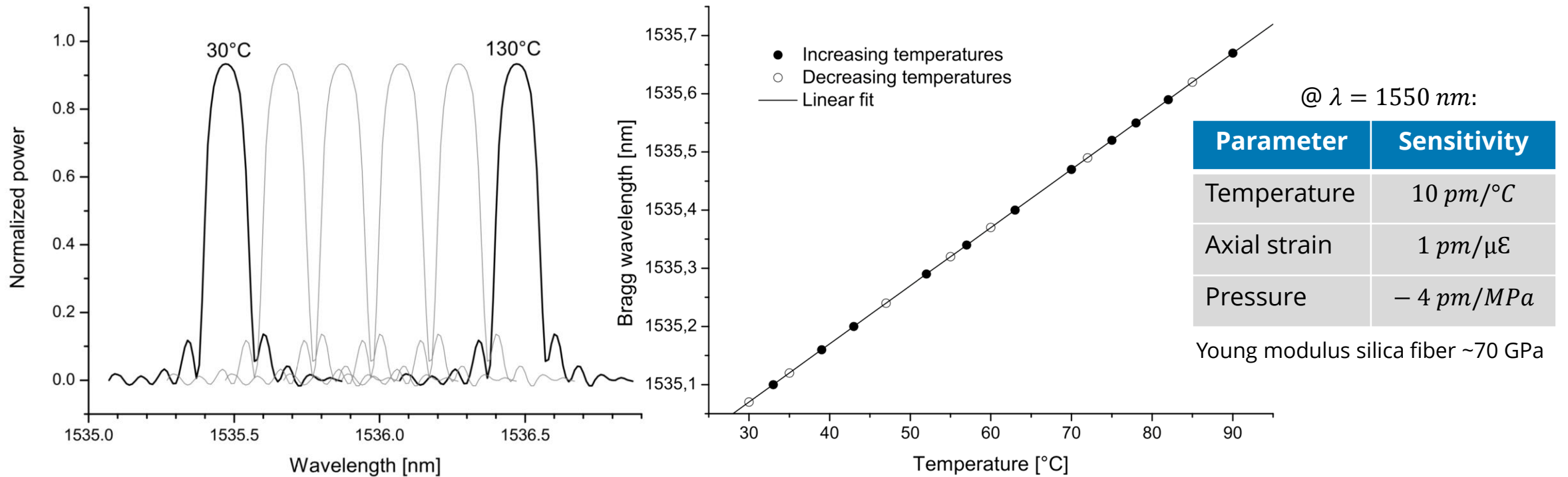
Multiple sensing
points distributed
along the fiber

Our technology: **FBG sensors**
FBG = Fiber Bragg grating

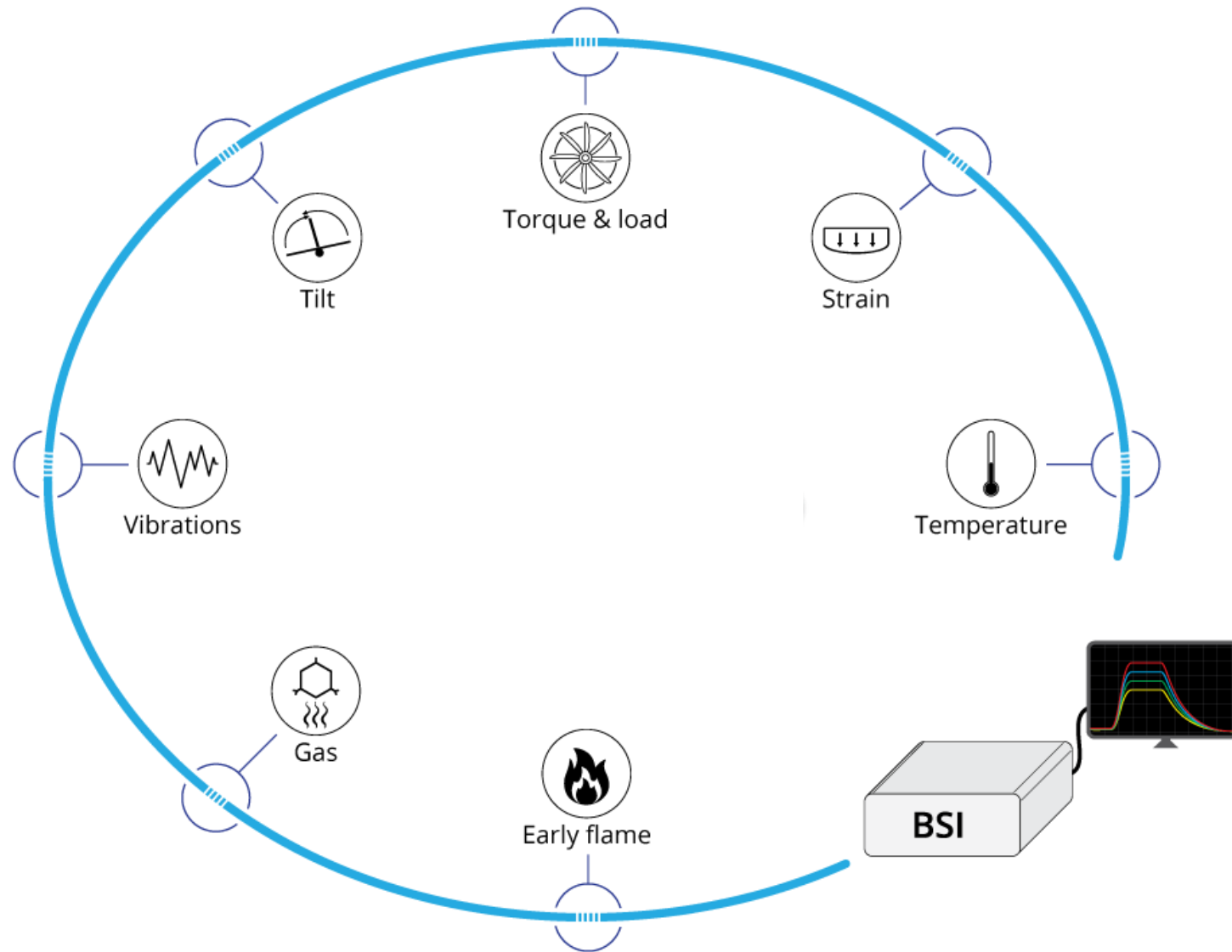




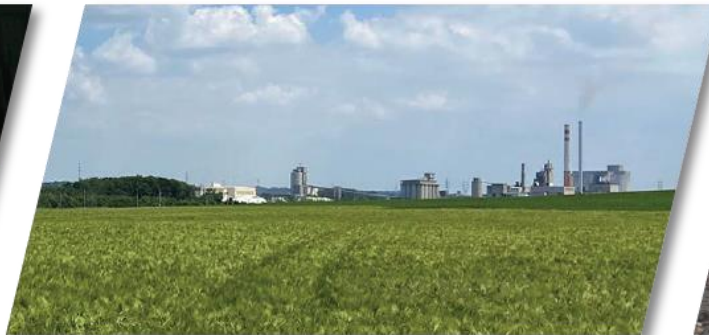
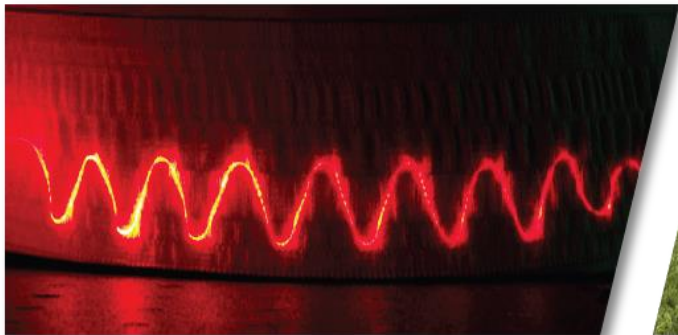
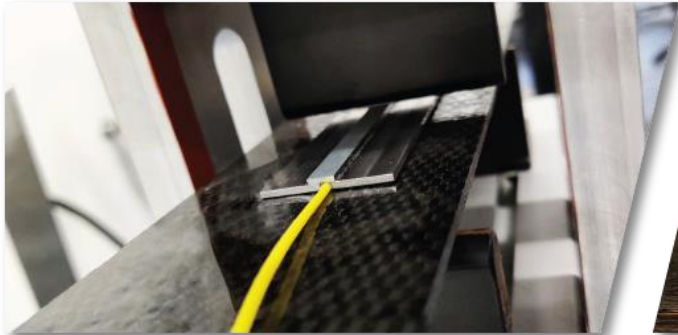
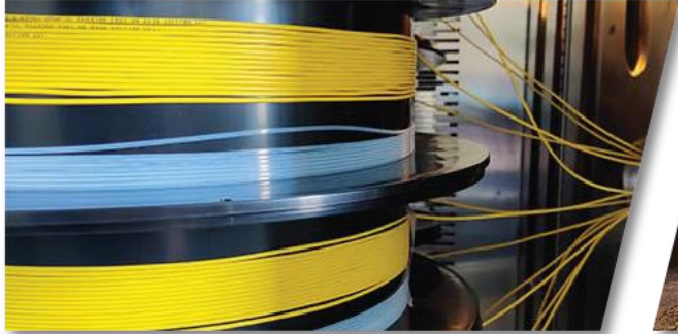
- Track the shift of λ_{\max} as a function of time



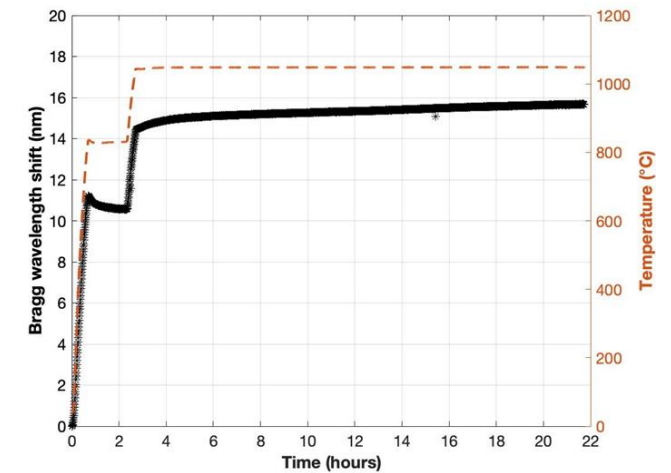
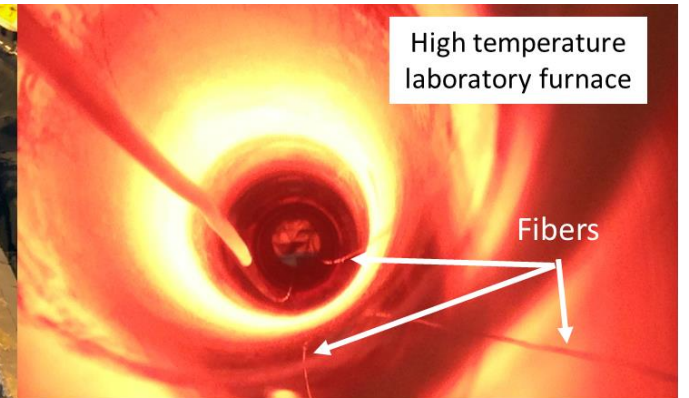
What can be measured ?



Applications |

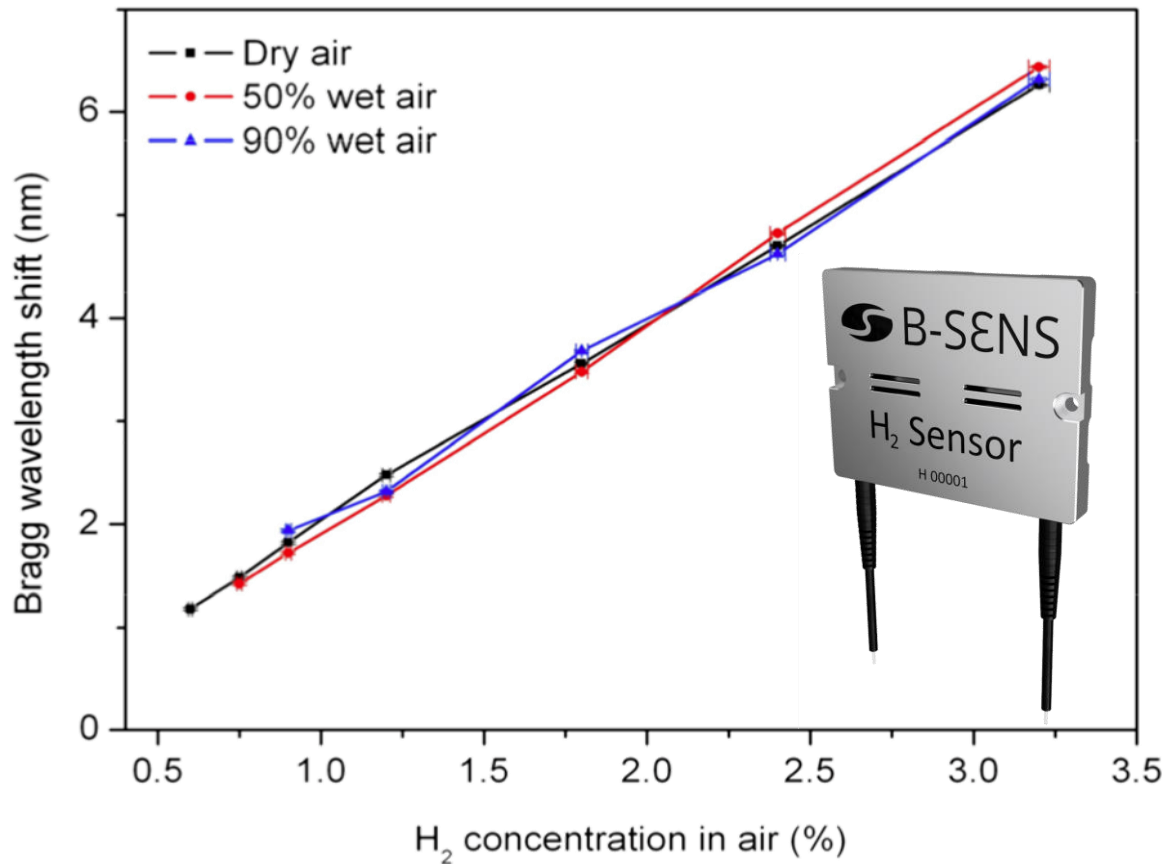


(Very) high temperature measurement

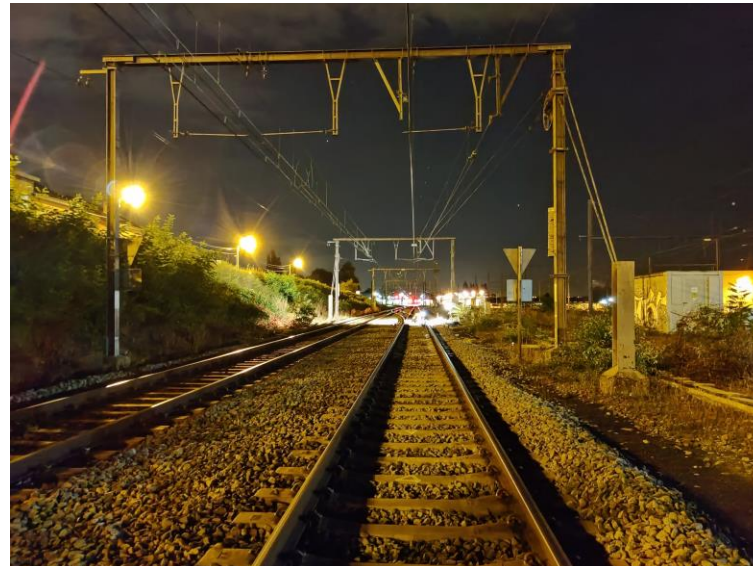
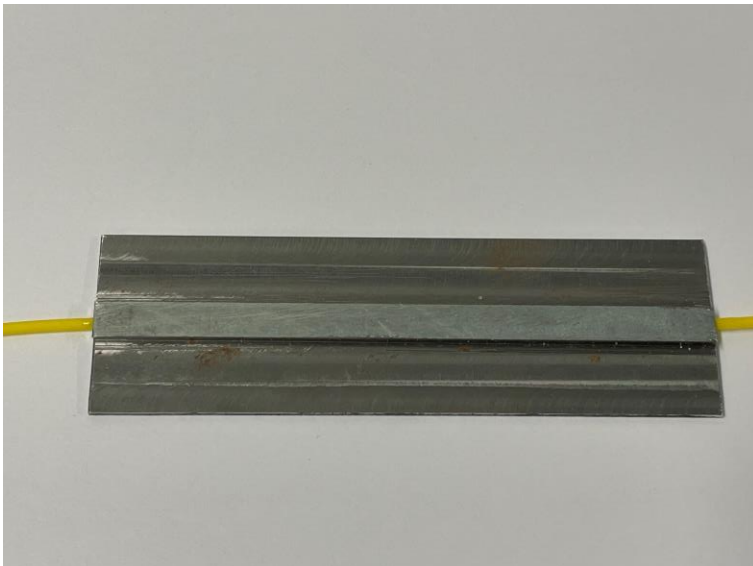
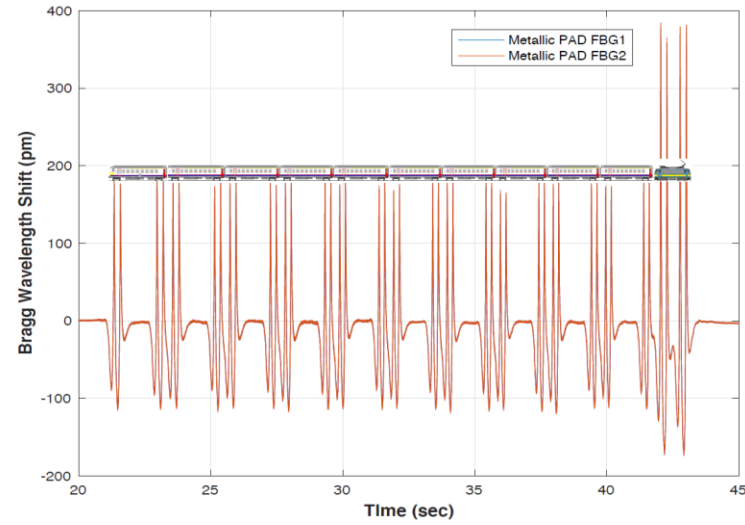


- Measurement in glass ovens and steel industries
- Temperatures up to 1050 °C
- Several tens of sensors
- Inconel tubing

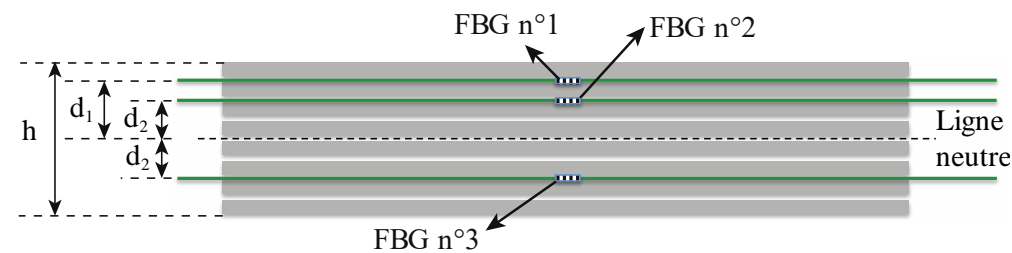
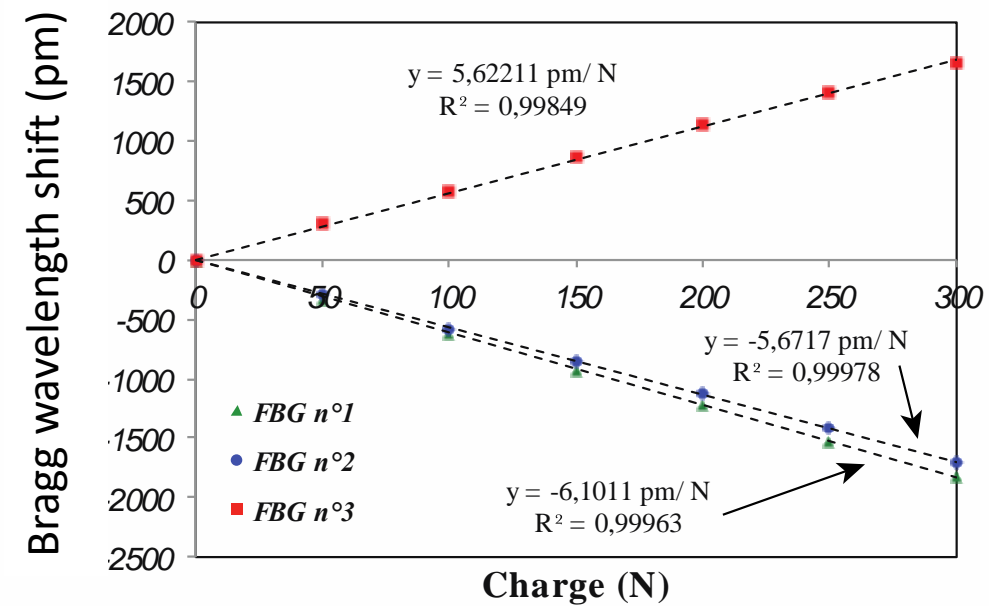
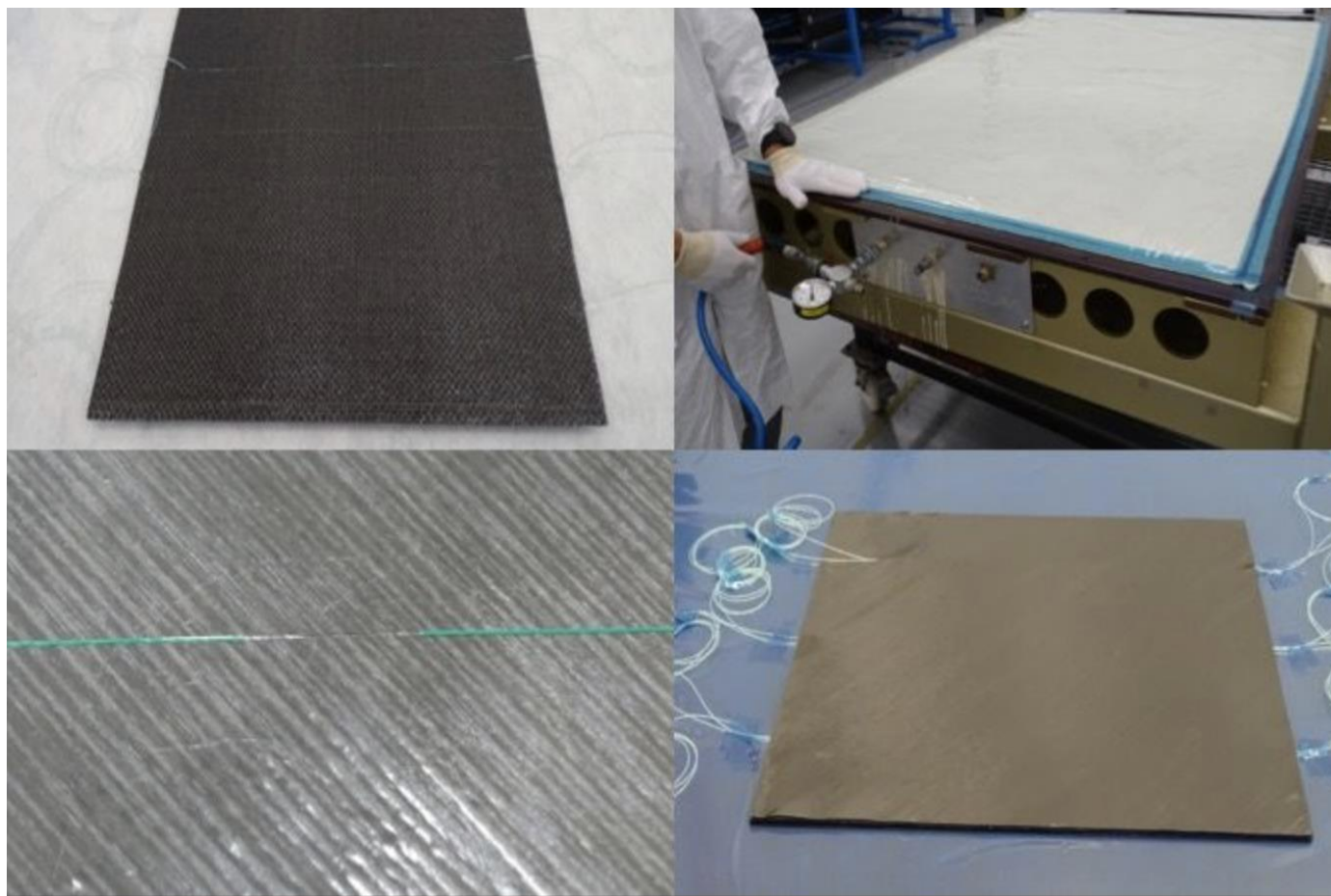
Patented technology: hydrogen sensor



Strain sensing for axle counting



SHM in composite materials



A world of optical fiber sensors

Smart transport
Traffic monitoring

Energy
production

Industry 4.0

Pollution
monitoring

Environmental
sensing

SPIN-OFF of UMONS:



B-SENS

Creative Sensing Solutions