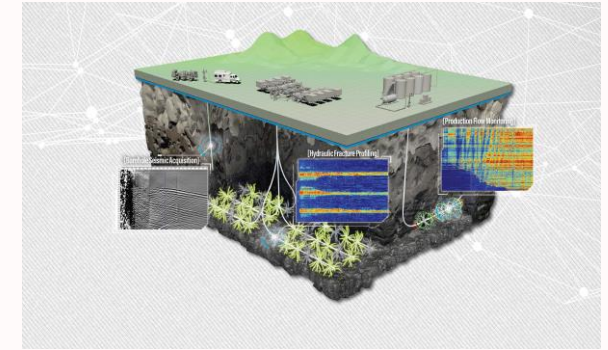


The background of the slide is a dark blue gradient with several glowing, curved light trails in shades of purple and blue, creating a sense of motion and technology.

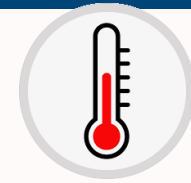
PHOTONEXT: ACTION 2: SENSORI

- **AIM:** to leverage existing expertise in optical sensing for:
 - Aerospace
 - Environmental monitoring
 - Harsh Environment
 - Automotive
- **Overall investment:** 300,000 € for new equipment to go beyond SOA and provide useful service to companies and develop new applications

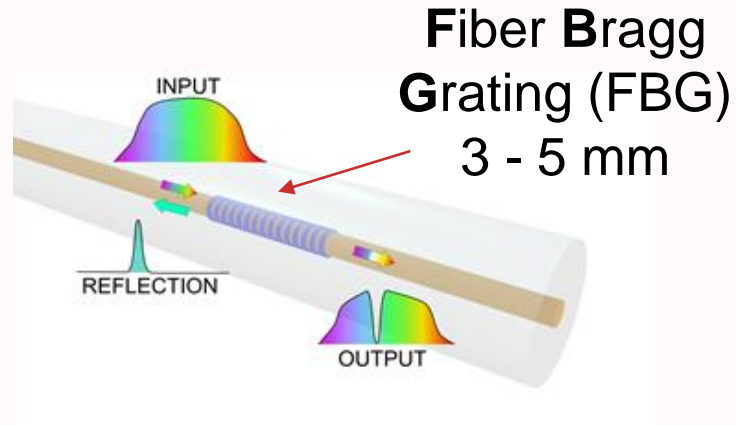




Sensing of strain, temperature and vibrations

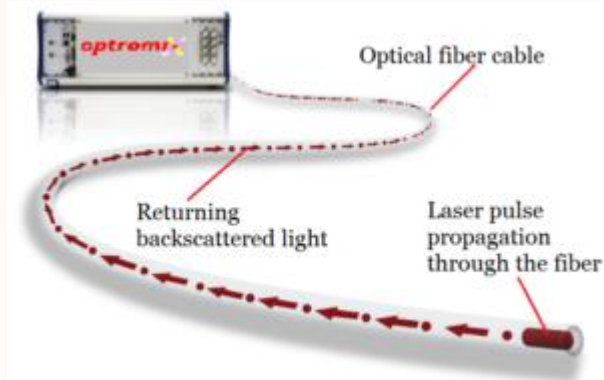


- Point sensing

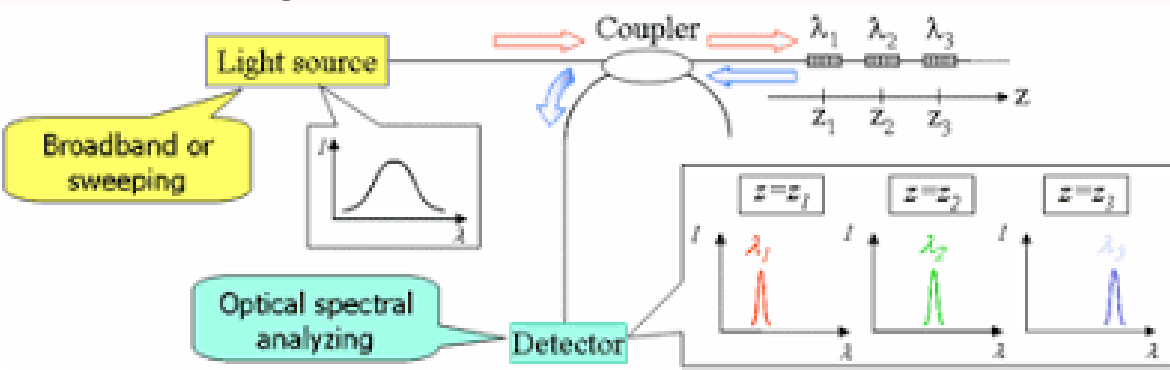
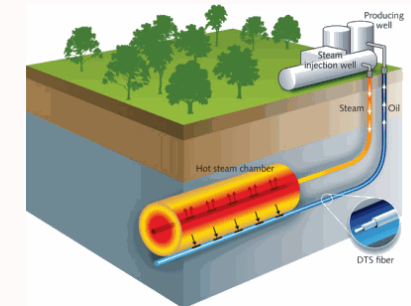
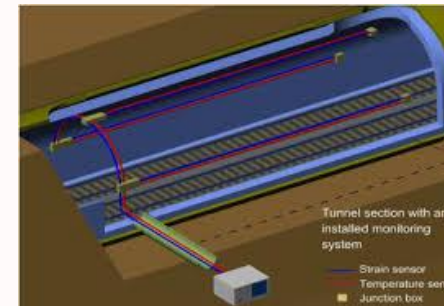


- Multiplexing
- Sensing up to 2km

- Distributed sensing



- Resolution 10 cm
- Sensing up to 30 km



- High resolution Fiber Bragg Grating (FBG) optical interrogators up to 2.5 kHz from 40 to 160 sensing points

2 ×



1 ×



1 ×

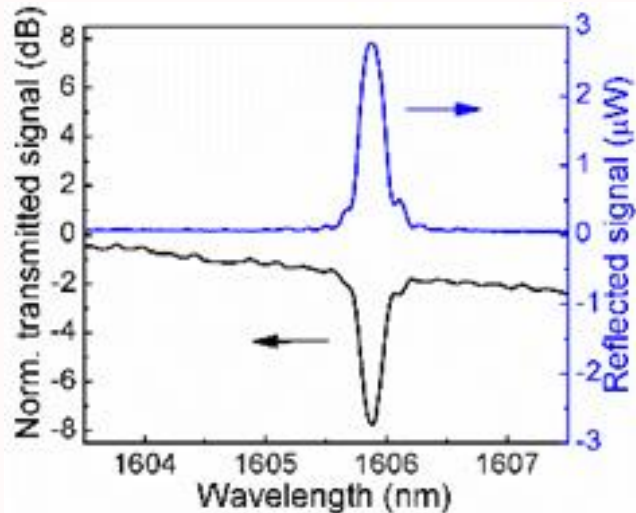
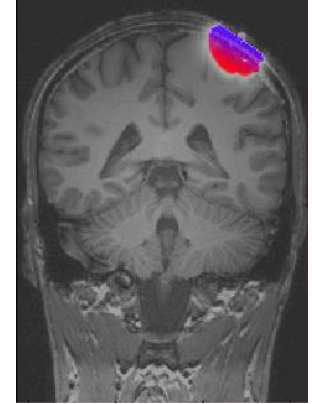
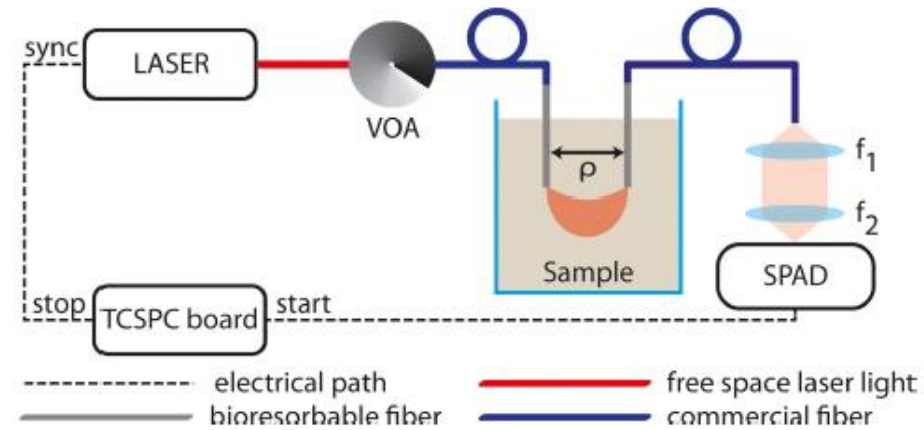


- Test bench for thermal, mechanical and vibrational analysis and calibration

To buy

- Special Bragg gratings for composite monitoring
- Optical accelerometers
- Interrogator for distributed sensing

L. Di Sieno, D. Janner, D. Milanese et al. (2017) "Towards the use of bioresorbable fibers in time-domain diffuse optics"



D. Pugliese, D. Milanese et al. (2018) "Bioresorbable optical fiber Bragg gratings"

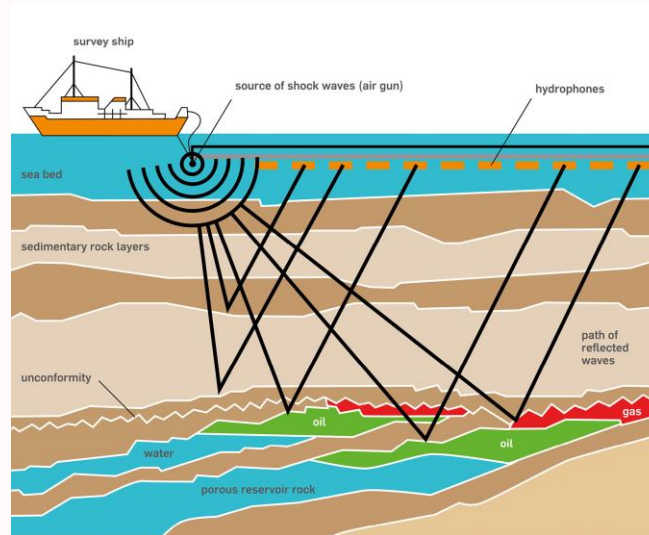
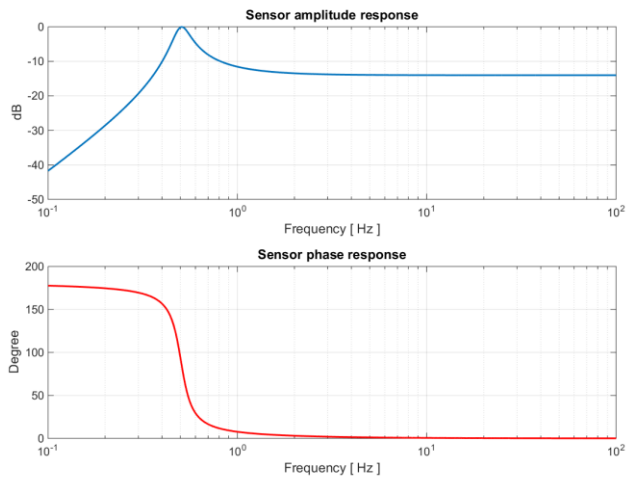
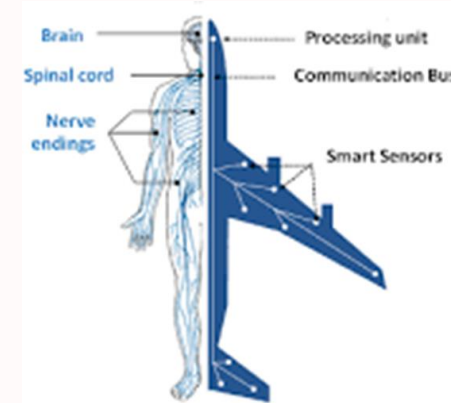
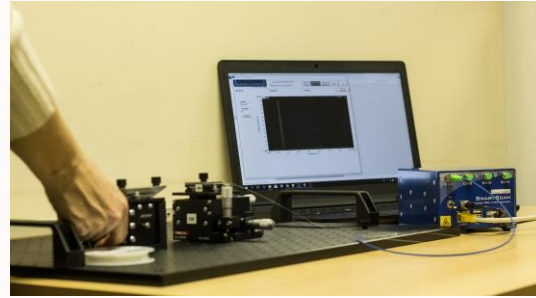
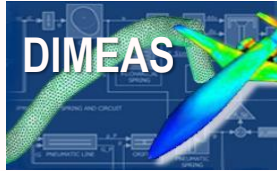
Optics Letters

OSA News Release

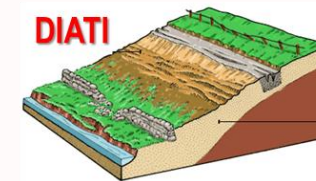
TG



Calibration bench for FBGs and testing on POLITO Team ICARUS



Design of seismic optical accelerometers for application in oil and gas/geothermal monitoring and geophysical exploration



- Contact with local industries – *P. Maggiore, D. Janner, D. Milanese*
- Contact with Rosneft and Gazprom – *A. Godio, D. Janner*
- Collaboration with *prof. Barla's* group on the measurement of tunnel deformation in Torino Underground – *R. Gaudino and G. Perrone*
- Collaboration with *prof. Belingardi's* group for testing of FRP materials for automotive applications – *D. Janner and D. Milanese*

- To perform complete calibration on FBG sensors for temperature, strain, vibrations
- To develop customized software interface for remote interrogation of multiple points
- To test FBGs for aerospace applications on gear boxes (Mecaer), drones (Icarus@PoliTo), heat exchangers (Thales Alenia Space)
- To replace current inclinometers and accelerometers with optical counterparts developed and installed in laboratory testbeds for environmental monitoring of landslides
- To start distributed sensing experiments for extensive monitoring of infrastructures and landslides

PHOTONEXT

Grazie per l'attenzione!

Per ulteriori informazioni:

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info.photonext@polito.it



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<https://goo.gl/PVx4GY>