Empa
Materials Science and Technology

The development of new fibres enables to combine materials with specific properties and to adjust surface properties to control Skin-Materials-Interactions.

Uniqueness of fibre-based (bio-) sensors.

| High surface-to-volume ratio for high sensitivity | High local resolution | Flexible and unobtrusive sensors | Porous sensors for high wearing comfort

Textile-based sensors

for patient monitoring

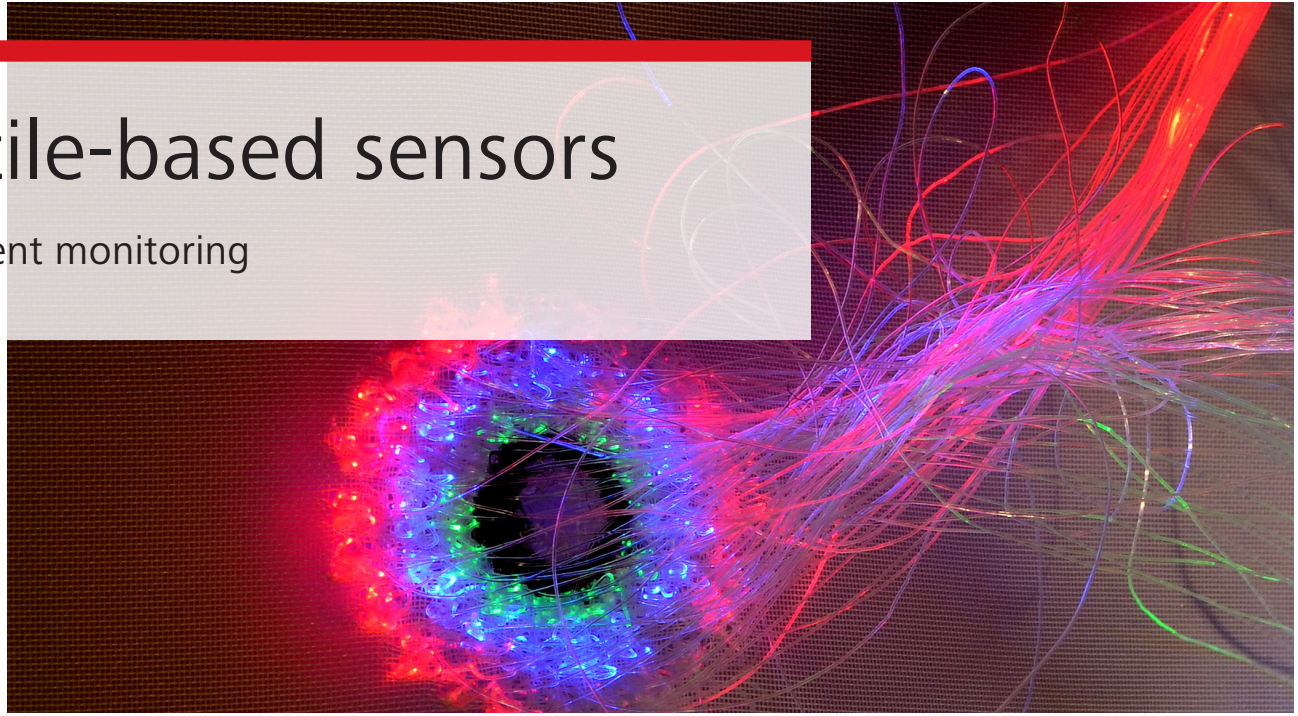

Photo Empa

Textile-based sensors

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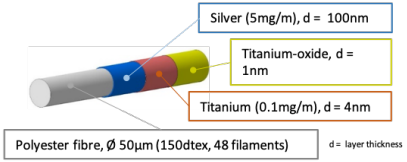
E-fibre technology

The conductive fibre



The textile integration

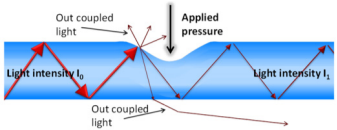
- Embroidery
- Knitting

The signals

- ECG
- Breathing

O-fibre technology

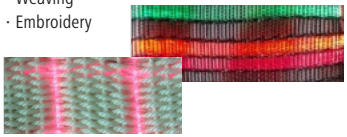
The optical fibre



Core: e.g. PMMA, Polycarbonate; high refractive index; Cladding: translucent thermoplastic polymers (fluorinated); low refractive index

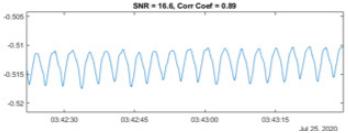
The textile integration

- Weaving
- Embroidery



The signals

- Blood oxygen saturation
- Breathing
- Local pressure impacts



Continuous patient monitoring

Advantages

- early detection of changes in health conditions
- additional information for medical diagnosis
- additional information for individualized treatments
- patient monitoring outside the clinical ward

Requirements

- ease of application
- unobtrusive signal acquisition
- accurate and reliable signal acquisition
- no impairment of wearing comfort

Find all of our info sheets on fiber and textile research at Empa online:
https://www.empa.ch/web/s401/s402/flyer