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Opto Semiconductors

UNIVERSITEIT TWENTE.



FULLPHASE

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UNIVERSITÄT
BERN

Fully integrated real time multi-wavelength
photoacoustics for early disease detection



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Change in healthcare delivery

Huge increase of chronic diseases

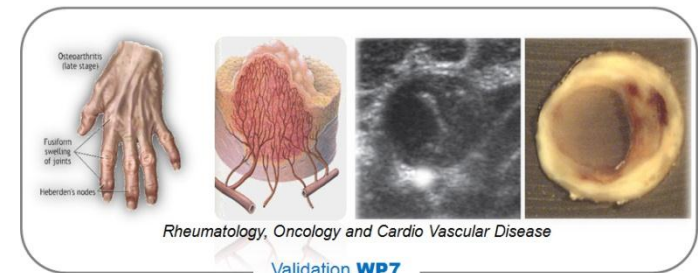
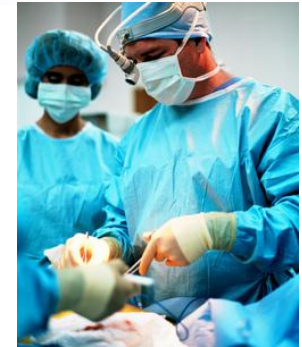
➤ Healthcare at affordable cost is a major challenge due to:

- Aging population.
- Increasing prevalence of chronic diseases.

○ Key items will be

- Point-of-care early disease detection
- Treatment monitoring
- Prevention

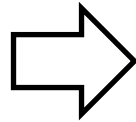
- FULLPHASE is on this track



High risk challenging research

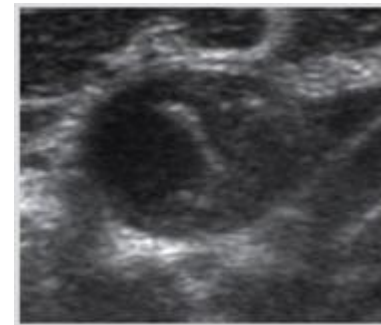
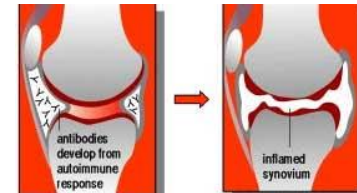
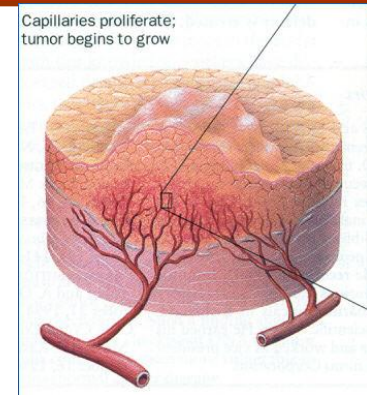
- **Beyond state-of-the-art in:**

- **Laser technology**
- **Penetration depth**
- **Laser beam forming**
- **Ultrasound detection**
- **Level of integration**



Medical applications

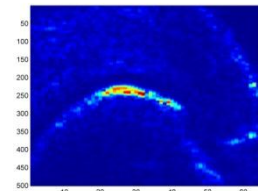
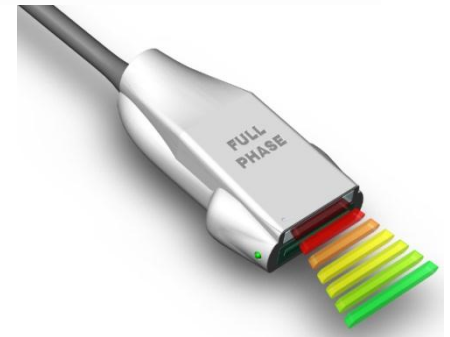
- **Oncology**
- **Rheumatology**
- **CVD looking at:**
 - Plaques characterisation
 - Plaque neovascularisation



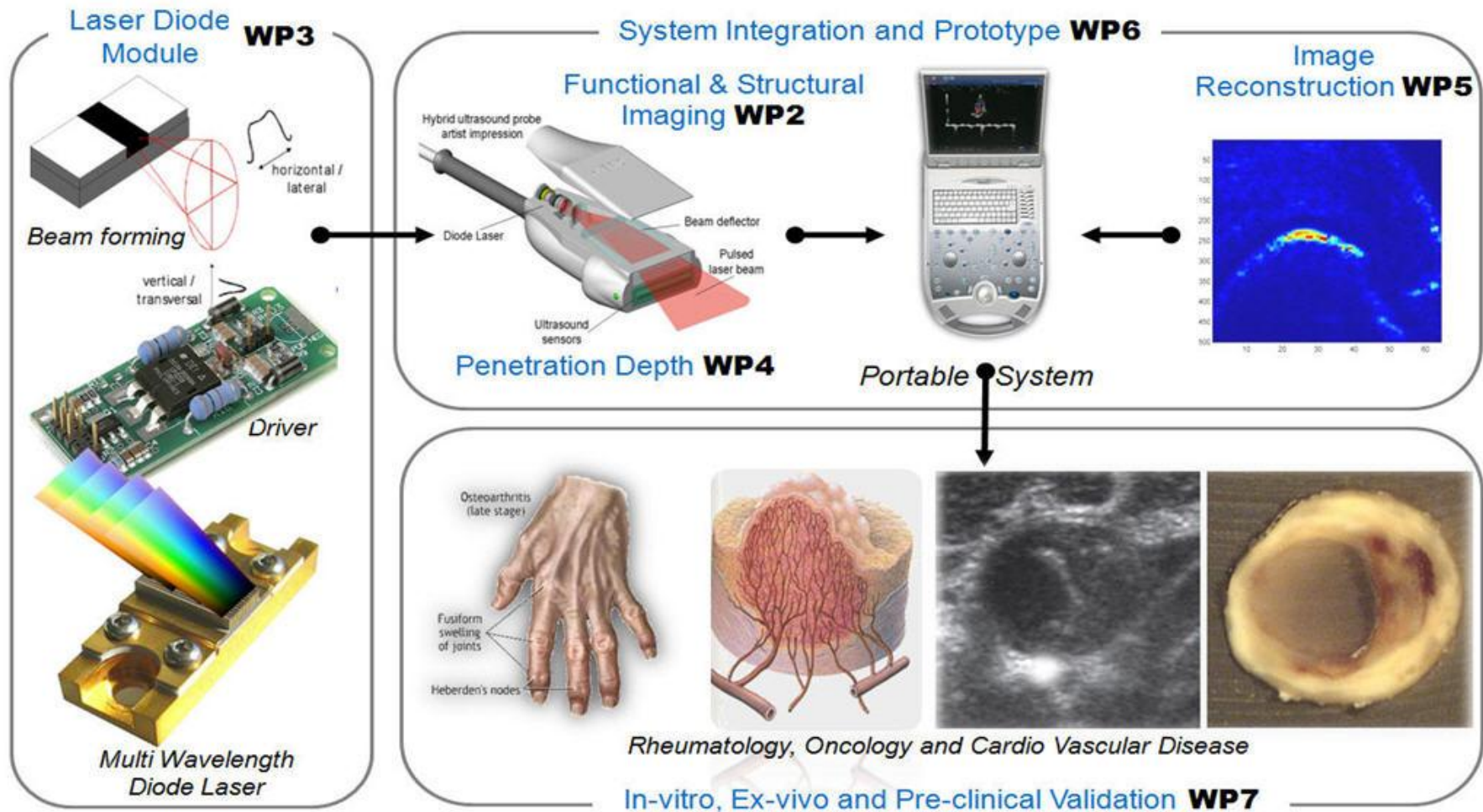
FULLPHASE objectives

Integrated set of research and development

- **FULLPHASE objectives**
 - **Portable PA/US system**
 - **Multi-wavelength functional PA imaging**
 - **A clinically suitable PA imaging depth**
 - **High temporal resolution and sensitivity**
 - **Multi modality imaging**



Activities



FULLPHASE exploitation

Project results

- **Portable PA/US system**



- **Ultra high energy IR source:** Scientific PIV, Designator, Illuminator and Active imaging



- **Multi-wavelength laser diode bar:** End pumping laser rod for defence application



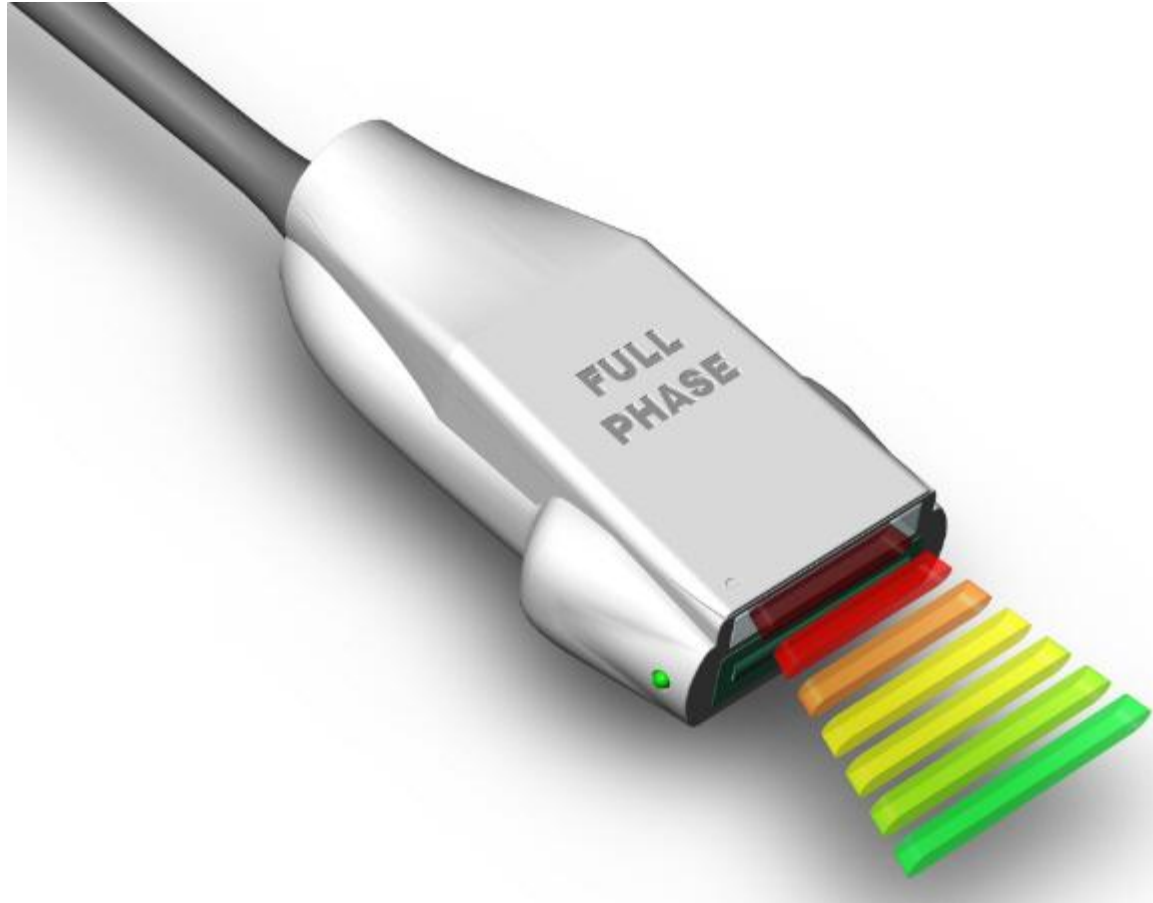
- **Multi-wavelength DOE:** Ultra large wavelength homogeniser bandwidth



- **High efficient laser driver:** Portable laser sources for any handset terminal



FULLPHASE logo



FULLPHASE general picture

FULLPHASE Concept

