Non-invasive glucose monitoring based on Mid-IR photo-thermal spectroscopy

DIAMONTECH

2025, Sergius Janik, COO

Needle pricks still play a crucial role in diabetes management

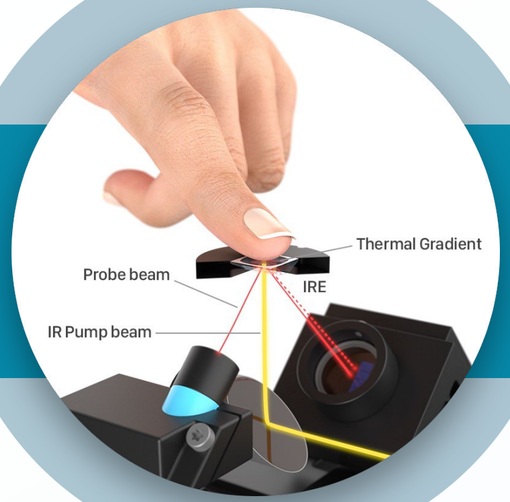
Diabetes is a chronic medical condition, where the body cannot regulate the blood sugar effectively anymore.

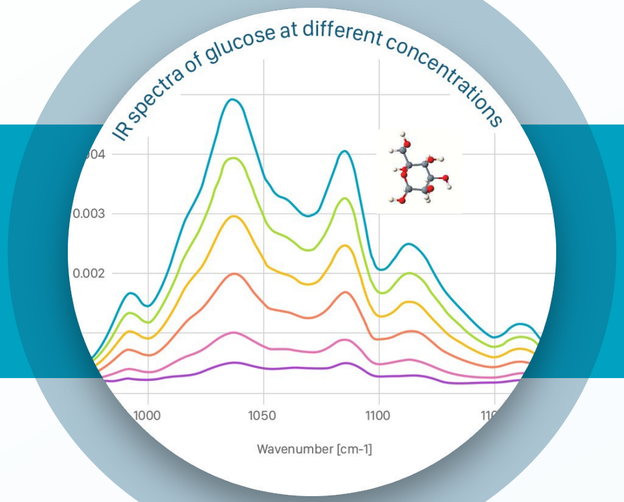
World:
500M+ people live with diabetes

USA:
34M people (diabetes) +
88M people (pre-diabetes)

USA:
$1 out of every $4 spent in the healthcare system is attributed to diabetes

Non-invasive solution through MID-IR Spectroscopy



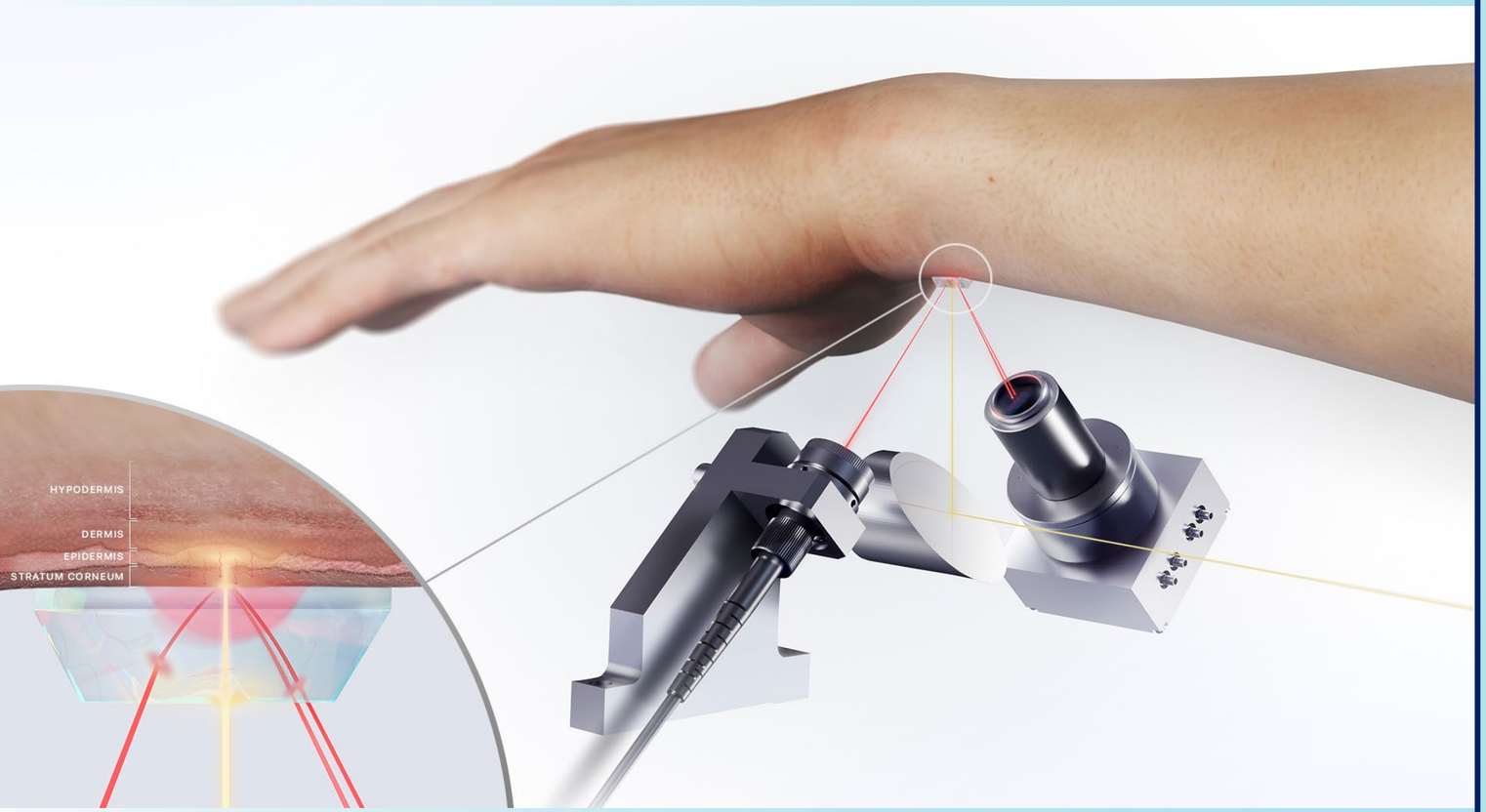


QCL sends light in the skin...

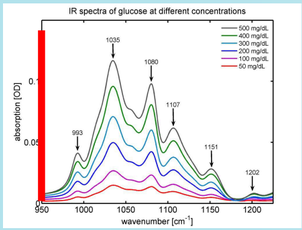
...that excites the glucose molecules...

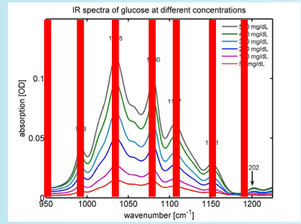
...and leads to an accurate glucose measurement!

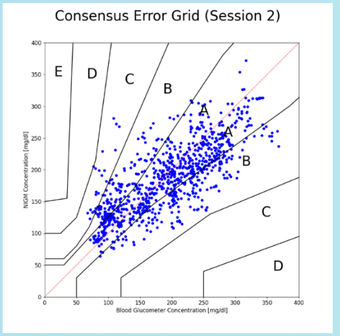
First truly non-invasive solution with proven accuracy

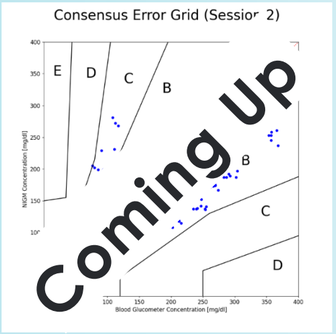


After validation: Miniaturization

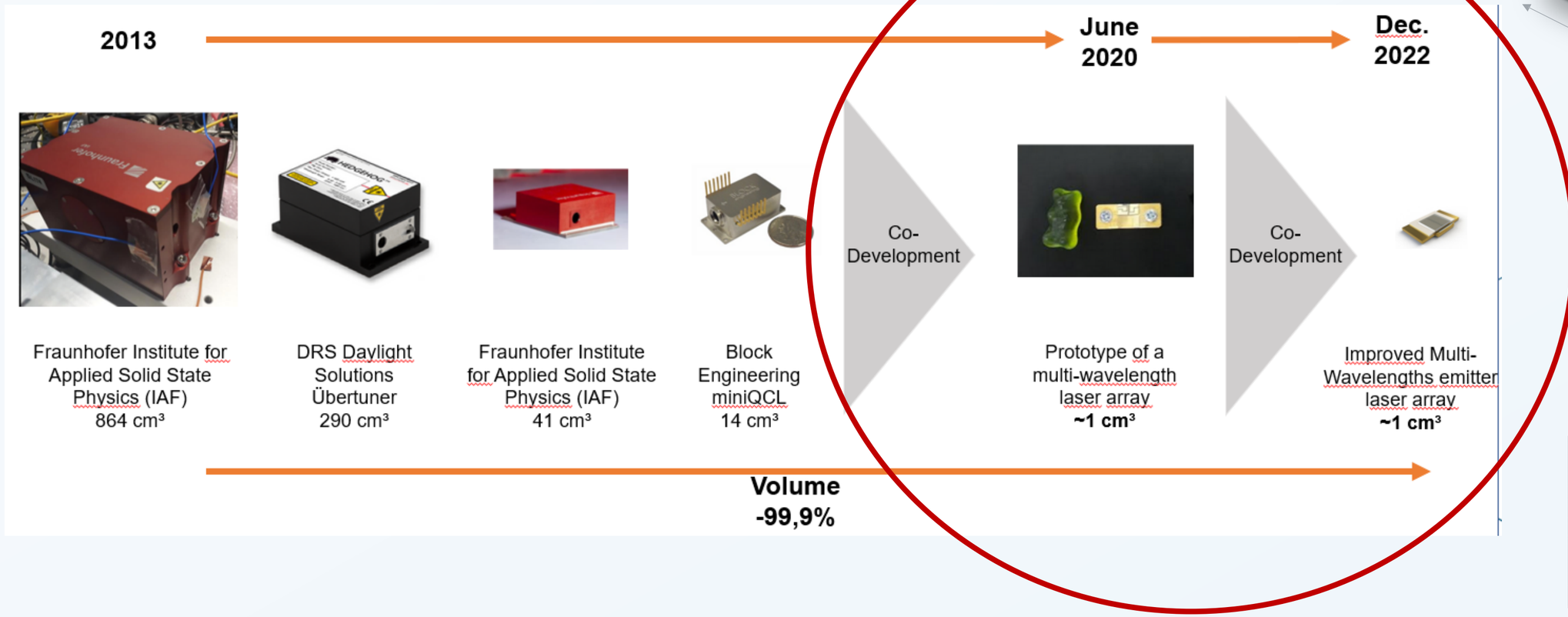


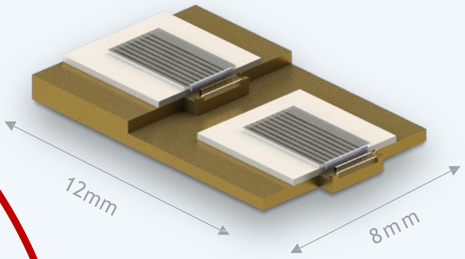






QCL as the core component



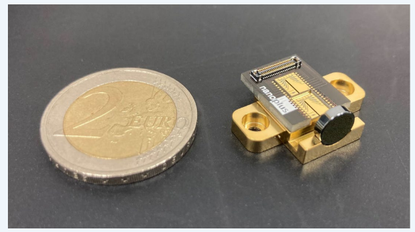


Proprietary Glucose Quantum Cascade Laser

(2023)

PARTNER

nanoplus

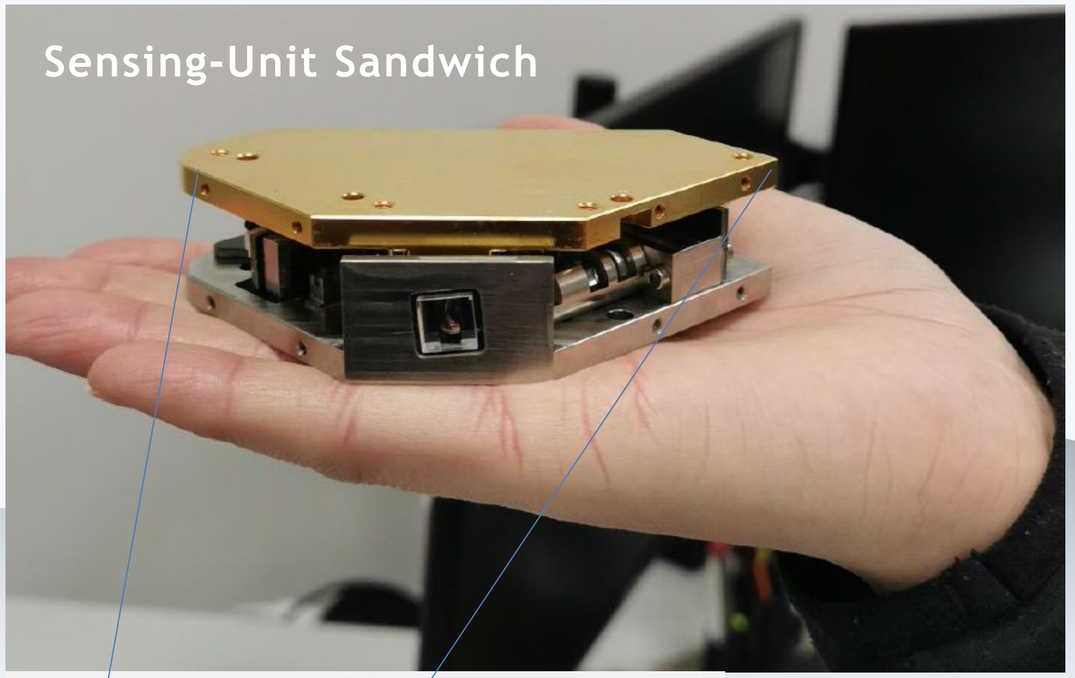


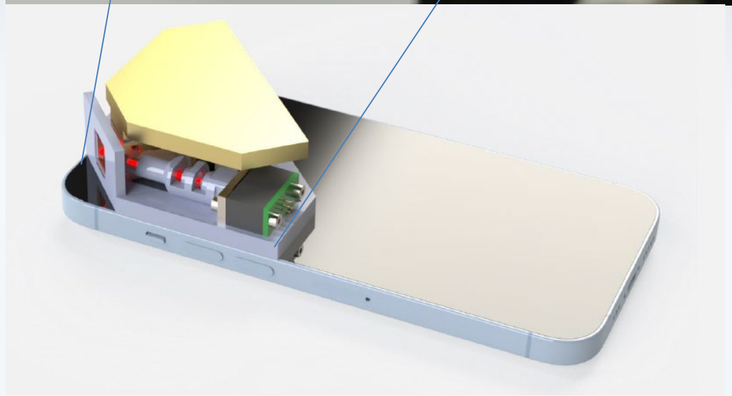
Current QCL

(2025)

Form factor of QCLs over the years

Integration of QCL in handheld unit



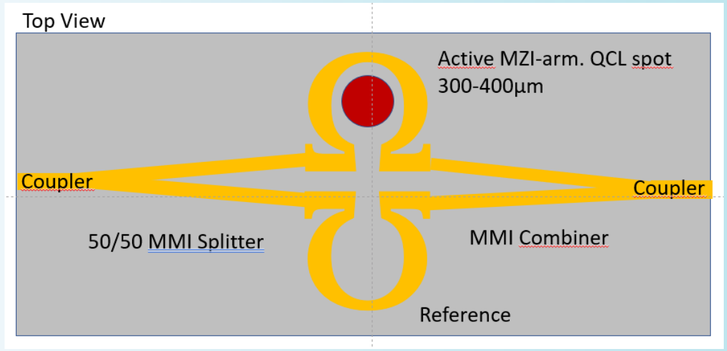


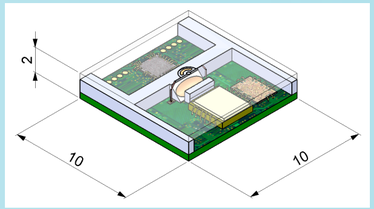
Medtech Device,
Handheld.

D-Pocket

Outlook: Optics Integration into a PIC

- Active development
  - Detection => MZI/RR
  - Probing: VCSEL + photo diode
  - Integration challenge with different substrates:
    - QCL: InP (or GaAs), Probe Laser, Detector: Si, MZI/RR: SiN/SiO_2
- Value vs. Volume

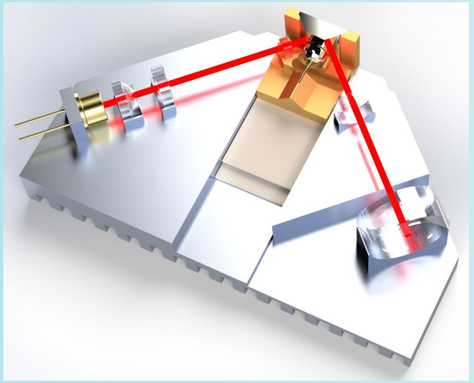




Outlook: Electronics Integration into an ASIC

- Active development
  - FPGA => ASIC

Analog



Low power digital

Power IC

A world-class team drives the change

Complementary Team of 20 people

Thorsten Lubinski, CEO

Computer Engineer with MBA and a specialization in medical software. He built several startups and had three exits.

Sergius Janik, COO

Sergius links the scientific with the business parts. He is a physicist and laser expert.

Dr. Pip Clark

Pip has a background in physics and chemistry research, scientific equipment design, and full stack software development.

Dr. Michael Kaluza, CTO

Michael is a physicist coming from CERN with expertise in regulatory and public affairs for medical technology.

Catalina Plesmann

Catalina is Head of Marketing with 8 years of experience in different health and science focused startups.

Prof. Dr. Werner Mäntele

Professor of Bio-Physics. 500+ scientific publications. Over 30 years experience in detecting molecules in liquids

DIAMONTECH

The Next Generation Of Biosensing

Contact: Thorsten Lubinski, CEO
Email: thorsten.lubinski@diamontech.de
Mobile: +49 178 426 39 67

WWW.DIAMONTECH.DE

DiaMonTech AG
Boxhagener Straße 82A, 10245 Berlin, Deutschland