

Fraunhofer IZM – World-class High Tech Environment

>10,000 m² laboratory space

>60 laboratories & measuring rooms

>7,000 units of equipment

in 2018

3.7 million €
infrastructure investments

17.7 million € for
Forschungsfabrik Mikroelektronik
Deutschland



LABORATORY TYPES

LAB OF INTEGRATION
AT WAFER LEVEL

LAB OF INTEGRATION
AT SUBSTRATE LEVEL

ADVANCED SYSTEM
ENGINEERING LAB

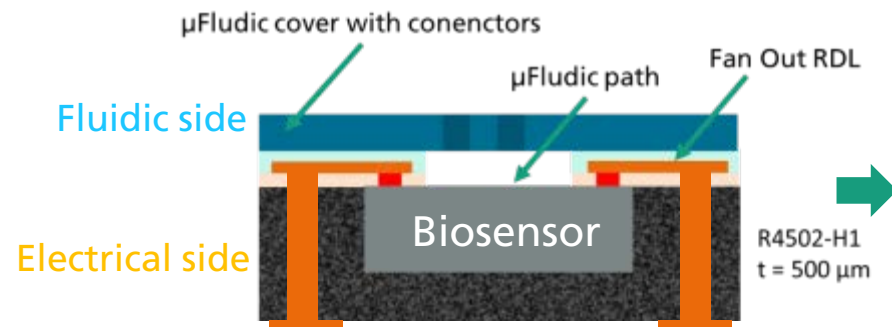
MATERIALS, RELIABILITY AND
SUSTAINABLE DEVELOPMENT
LAB

Datum

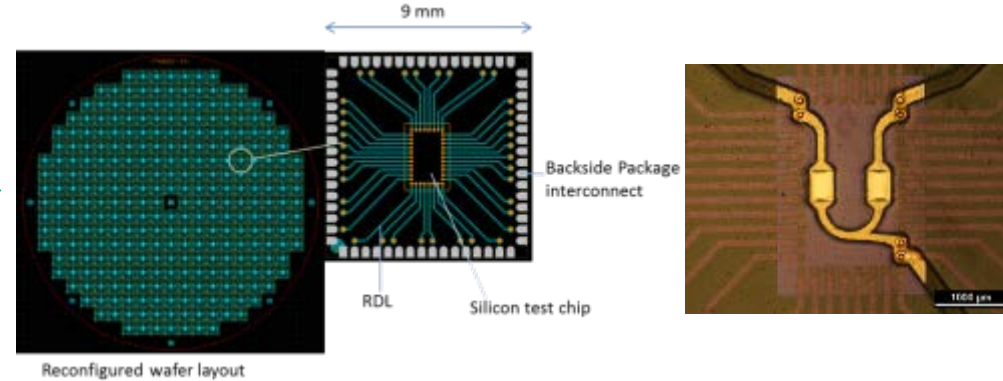
Dr. Henning Schröder, henning.schroeder@izm.fraunhofer.de, +49 30 46403 277

R&D Highlights

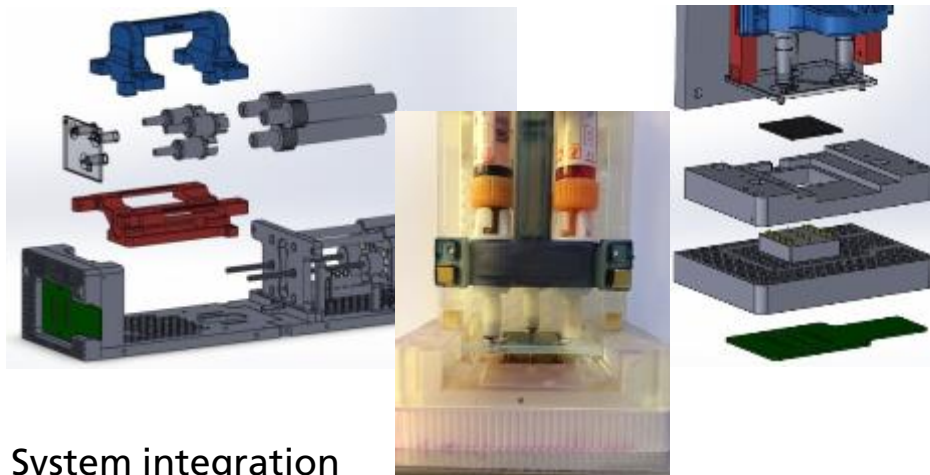
BIOSENSOR INTEGRATION BY FAN-OUT-WAFER LEVEL PACKAGING



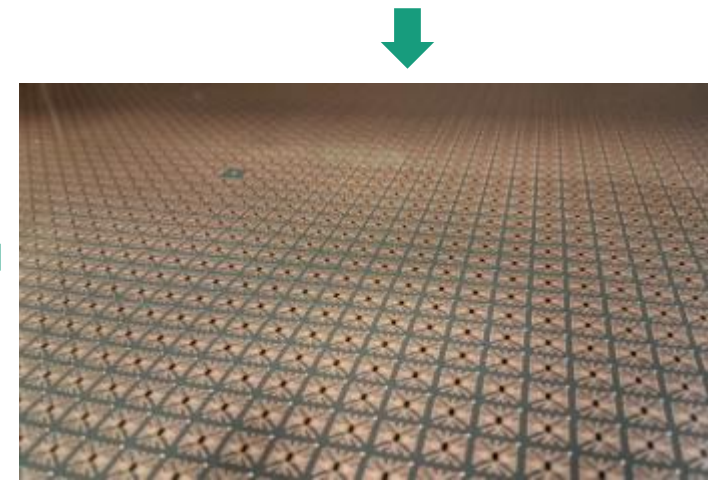
Concept of hybrid microelectronic / microfluidic device



Package design and reconfigured polymer wafer



System integration
➤ Point-of-care device



Prototype manufacturing and upscaling



Datum

Dr. Henning Schröder, henning.schroeder@izm.fraunhofer.de, +49 30 46403 277

R&D Highlights

LOW-COST POC DEVICE FOR EARLY DIAGNOSIS OF CARDIOVASCULAR DISEASES

Motivation

- Cardiovascular diseases (CVD) remain as the leading cause of death in the European Union
- Major need for cheaper and high sensitivity diagnostic devices

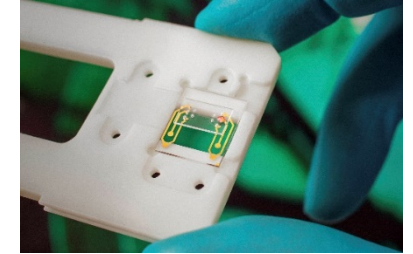
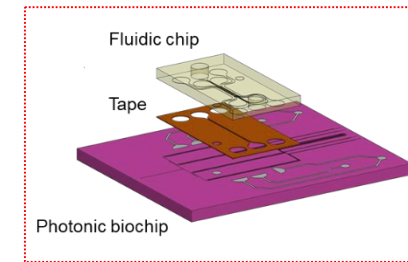
Goal

- Nanophotonic and micro-/nanofluidic technologies for detection of multiple CVD-related biomarkers in < 15 minutes
- IZM achievements: Low-cost and reliable chip-to-chip integration approach employing double-sided biocompatible adhesive tapes

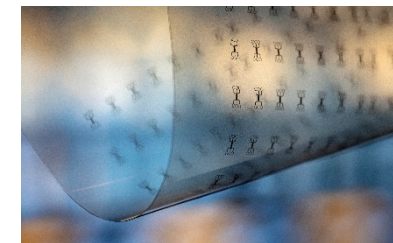
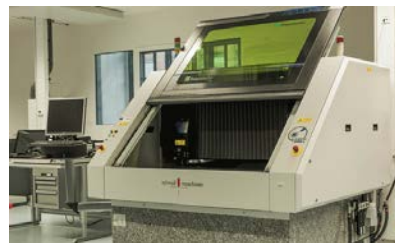


1.9 Mio deaths/year in the EU
(40% of all deaths)

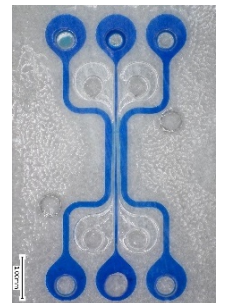
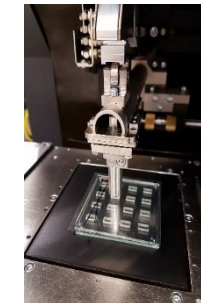
Optofluidic biochip cartridge



1. Laser microstructuring



2. Room-temperature bonding



Datum

Dr. Henning Schröder, henning.schroeder@izm.fraunhofer.de, +49 30 46403 277

HOW TO WORK WITH FRAUNHOFER IZM



Industrial Contract Research

(e.g. R&D-projects world-wide, feasibility studies, technology & process development)

Services for Industry

(e.g. demonstrators, prototypes, technology service, equipment, personnel)

Technology Transfer

(technologies and processes)

Strategic Alliances

(e.g. packaging manufacturing lines, personnel, industrialization consortia)

Cooperative Projects

(funded jointly by public & industrial sources, State, EU)

Common Basic Research

(with institutes and universities worldwide)

Datum

Dr. Henning Schröder, henning.schroeder@izm.fraunhofer.de, +49 30 46403 277