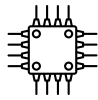


# Custom Si-based micro & nanodevices development and low volume fabrication

## MICROFABRICATION FACILITY GENERAL OVERVIEW

- Cleanroom 1200 m<sup>2</sup>
- ISO class: 4-6 (ISO 14644-1)
- Si wafers 100 and 150 mm
- Characterisation and packaging



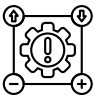
## MICRO AND NANO DEVICES

- Si photodiodes (350 – 1100 nm)
- Ionizing radiation detectors
- THz radiation detectors
- Thermal conductivity detectors (TCDs)
- MEMS/NEMS based sensors
- Flexible electrodes
- Microfluidic devices



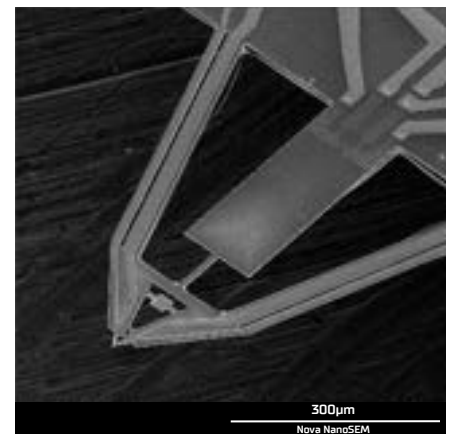
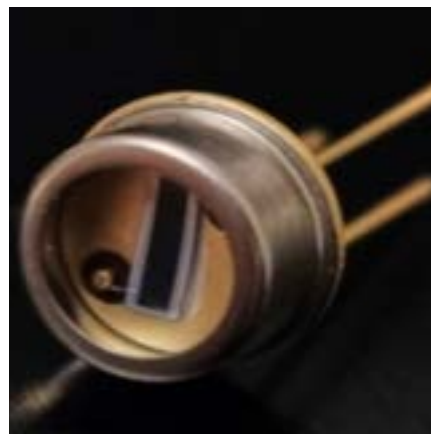
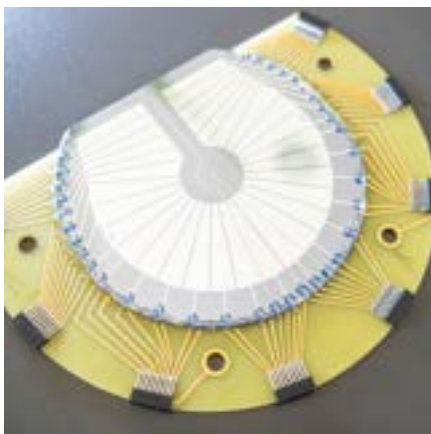
## MOTIVATION

- Niche sensor applications
- Industrial and special applications
- Biomedical analytics
- Customer oriented flexibility and scalability



## CAPABILITIES

- Access to 1-3 μm CMOS-class process with polymers, glasses, piezomaterials, noble metals included
- Production of detectors according to Customer specification
- Development of technology and implementation within research projects and customizable service



SCAN ME

**BATCH PROCESSING**
**PACKAGING /  
MICROASSEMBLY**
**MASK WORKSHOP**
**CHARACTERIZATION**

- RCA cleaning
- Photolithography / EBL
- Thermal processes – Si oxidation and LPCVD (SiN<sub>x</sub> and PolySi), RTP
- Plasma etching and deposition (incl. DRIE)
- Wet etching (KOH)
- Metal deposition (Al, Pt, Au, Cr, Ti)
- Ion implantation (up to 12" wafers)
- Die separation – Disco saw
- Die bonding
- Wire bonding
- Grinding / wafer thinning
- Encapsulation/hermetisation
- Flexible/Customized approach
- Single pieces and large series (thousands of pieces)
- Development and production of chrome photomasks for semiconductor technology and other applications requiring high precision and high resolution of the pattern.
- Glass plates covered with chromium.
- Standard dimensions: 4x4 i 5x5 inch (max. 8x8 inch).
- Standard resolution: 1.5 μm (as an option down to 800 nm).
- Several characterization tools:
  - Electrical (CV, IV, ...)
  - Mechanical
  - Ellipsometry
  - Optical, SEM, AFM, ...
- Multidomain modeling and simulation
- Design & manufacturing of test structures

