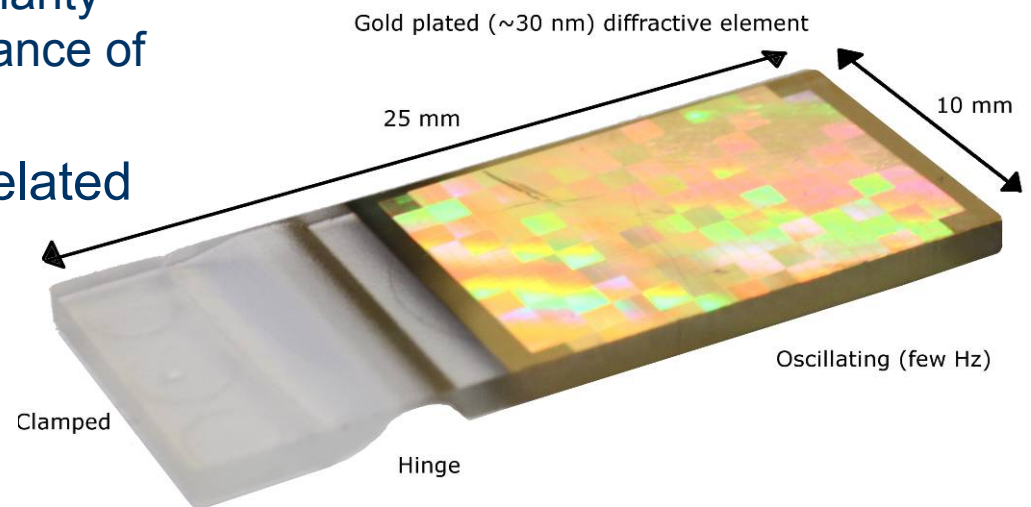


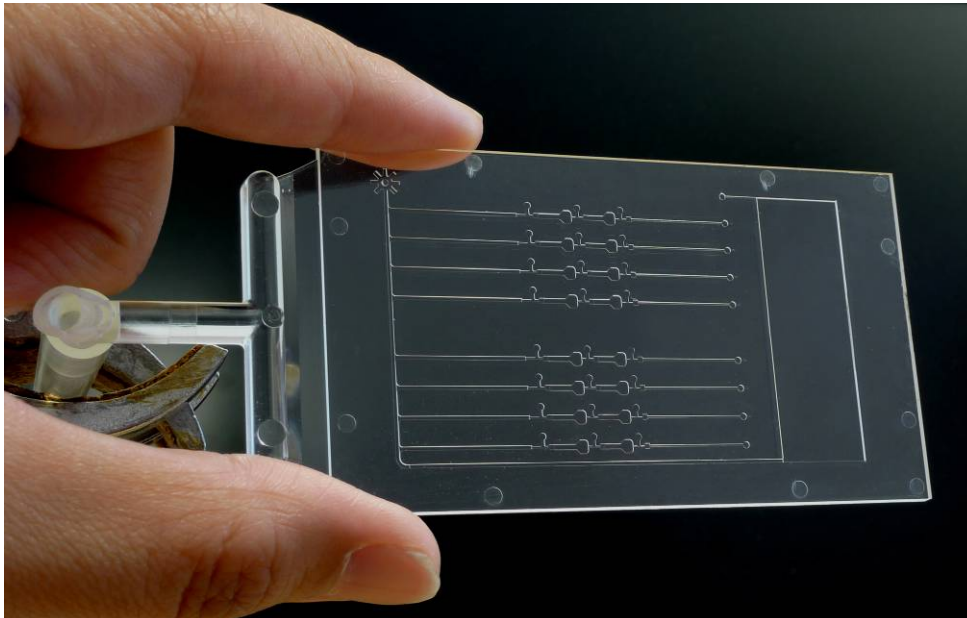
# Indoor air quality – Demand-controlled ventilation

- Novel sensor for monitoring CO<sub>2</sub> concentration developed by OptoSense
- Essential part injection moulded in polycarbonate polymer
  - Sub-micrometer replication of optical grating
  - High requirements – planarity and mechanical performance of integrated hinge
- Polymer- and fabrication-related R&D by SINTEF MC



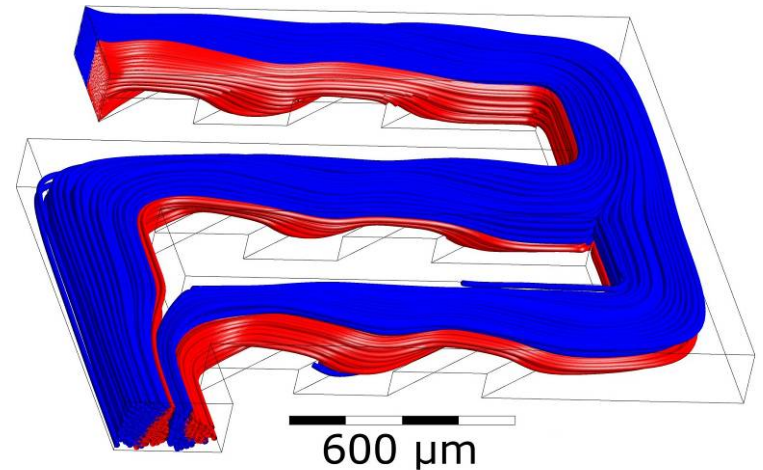
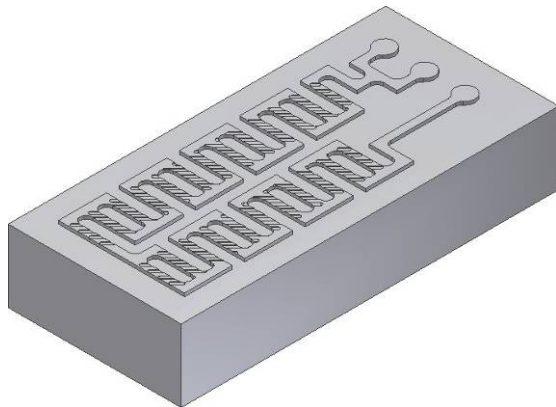
# Early diagnosis of cervical cancer

- Lab-on-chip device developed by NorChip and SINTEF ICT for detecting high-risk human papilloma virus via mRNA (also a general platform for detecting bacteria and viruses)
- The chip is injection molded in a COC polymer
  - High accuracy and low surface roughness of micro-features essential for microfluidics
  - Barrier properties of material essential for shelf-life
  - Low price per unit
- Small-scale pre-market production by SINTEF MC for NorChip



# New in-plane micromixer

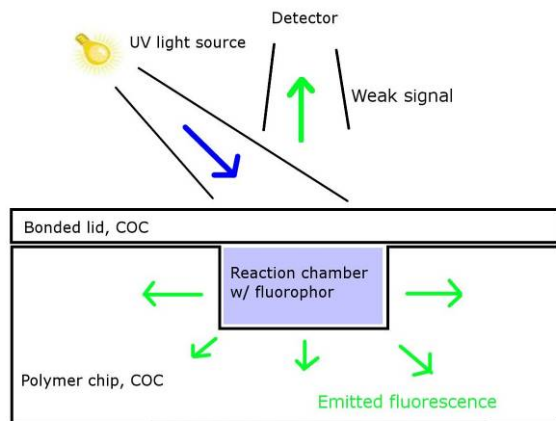
- Easy fabrication and bonding (lid)
  - No intricate structural details
  - Open channel design
- Good mixing performance
  - Ribs in the channel bed rotates the flow
  - Repeated stretching and folding laminates the fluids
  - Exponential increase in interfacial area



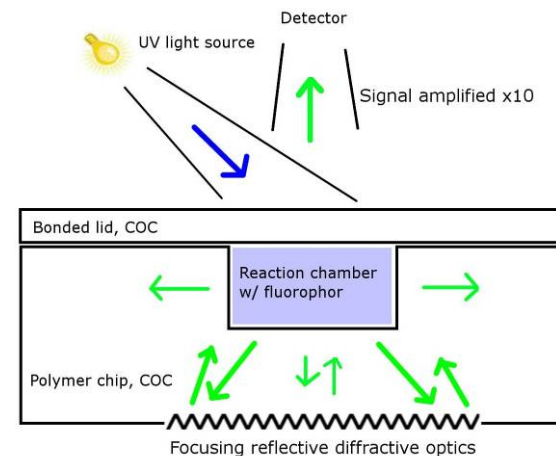
Terje Tofteberg, Maciej Skolimowski, Erik Andreassen and Oliver Geschke  
*Microfluidics and Nanofluidics* (2009)

# Novel detection concept: Integrated optics for lab-on-a-chip

- Optical functionality introduced via microscale surface features
- No extra fabrication steps necessary
  - Optics and channels moulded in one step
- SINTEF has experience in fabricating and designing both microfluidic platforms and micro optical parts



Traditional method for measuring fluorescence



Sketch on how integrated optics can be used to increase sensitivity