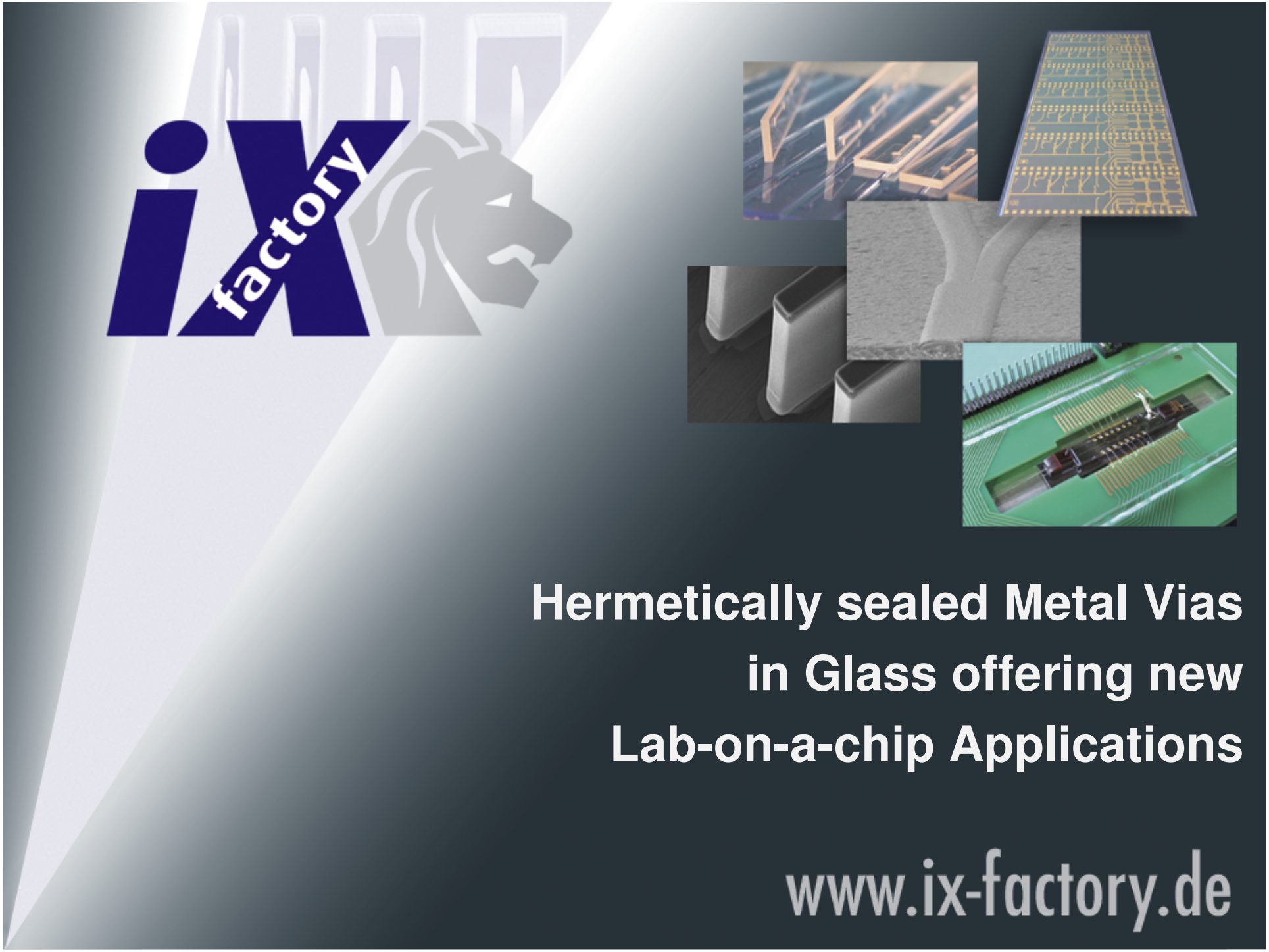
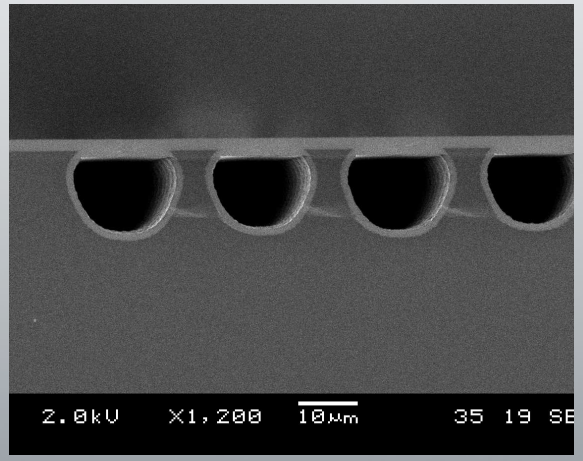
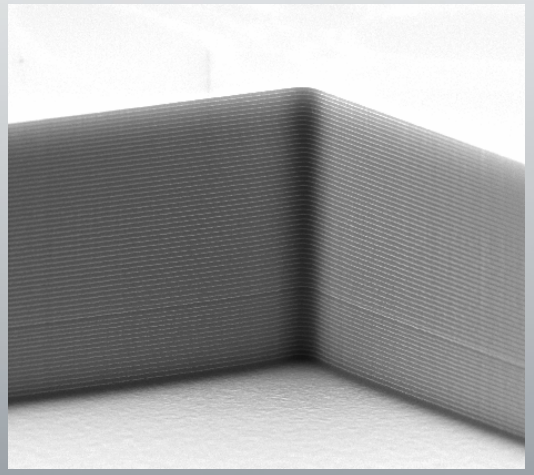

iX factory
Hermetically sealed Metal Vias
in Glass offering new
Lab-on-a-chip Applications
www.ix-factory.de

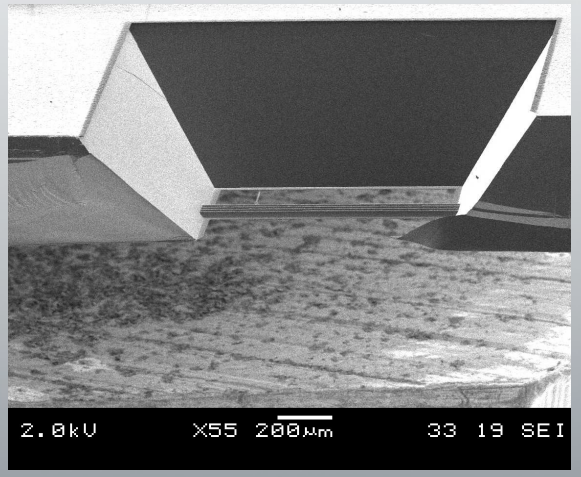
About Us

- Core Competencies
  - Microfluidic Chips
  - Optofluidics
  - Integrated Optics
  - MEMS

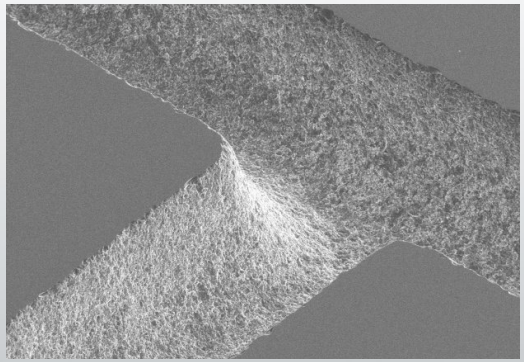
Technology

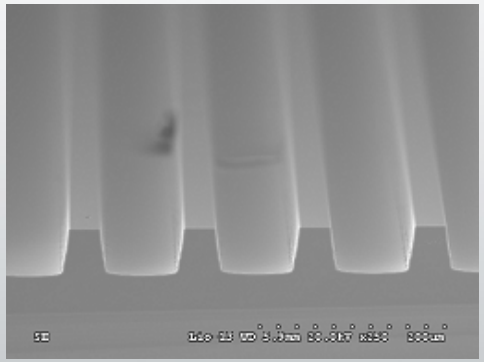


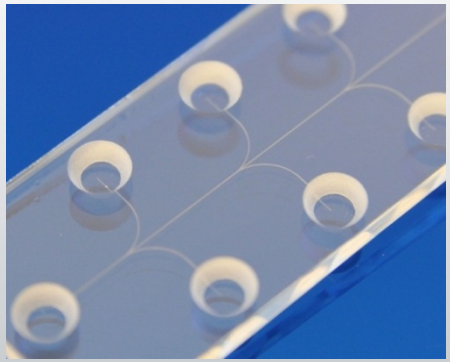




Technology



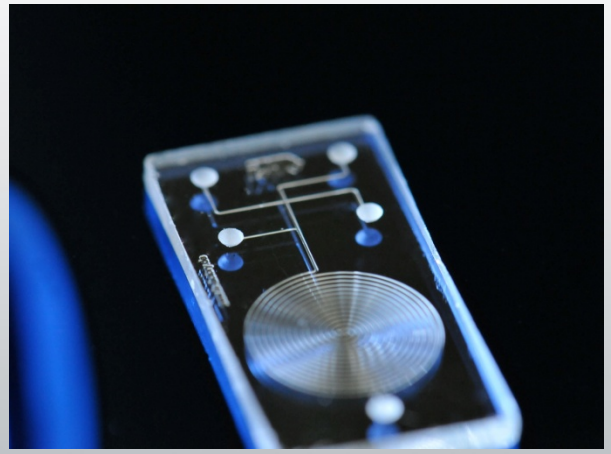




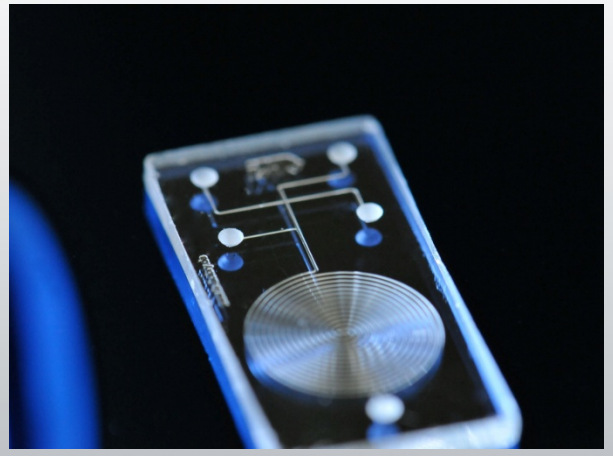
Benefits of Glass

- Widely accepted in Biotech
- Optical transparency over

  wide range of wavelengths
- Hermeticity: Effective diffusion barrier
- Chemical & thermal stability
- Heat Resistance



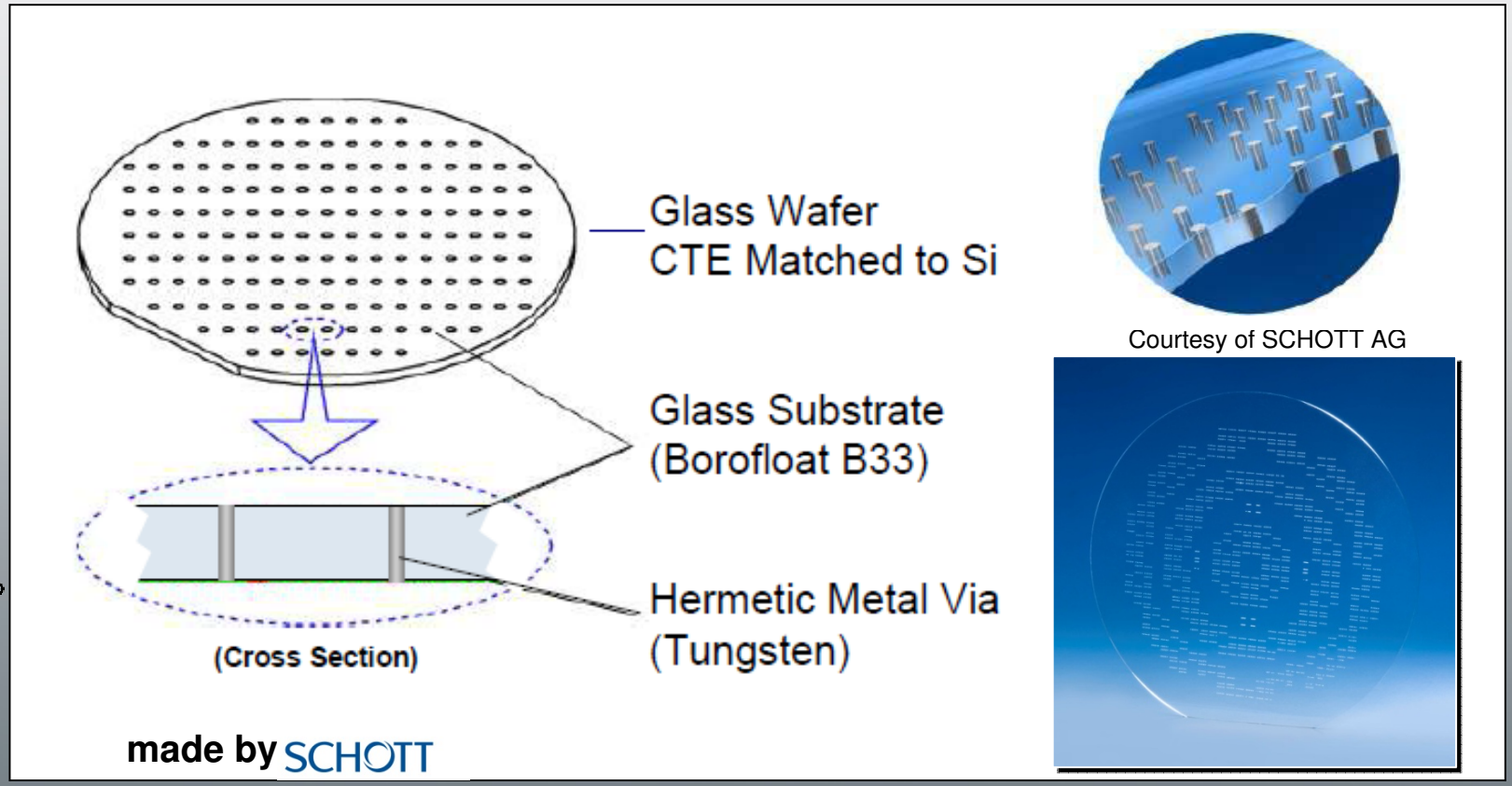
Benefits of Glass



- Excellent electrical insulation
- Low auto-fluorescence
- Electro-Osmotic Flow (EOF) possible
- Possibility of combining additional materials

SCHOTT HermeS®

Glass substrates with hermetically sealed vertical metal vias



HermeS® is a registered trademark of SCHOTT AG

Alternative Glass Vias

	Sandblast / Plate	Drill / Plate	HermeS
Hole shape	✕ tapered	○ straight	◎ straight & fine
Electrode diameter	✕ too large (0.15 / 0.4mm)	✕ too large (0.3mm)	◎ very small (0.05 ~ 0.15mm)
Hermeticity (electrode to glass)	✕	△	◎ glass/metal sealing
Adhesive strength	✕	△	◎ glass/metal sealing
Processing cost	✕	✕	◎

✕ :Unacceptable △ :Poor ○ :Good ◎ :Excellent

HermeS® is a registered trademark of SCHOTT AG

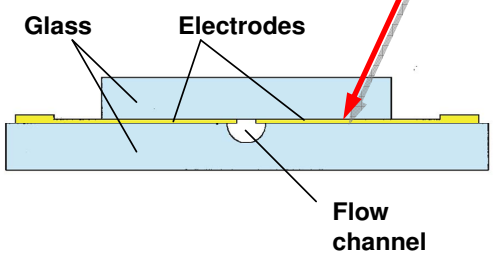
Application in Micro Reactors

Conventional

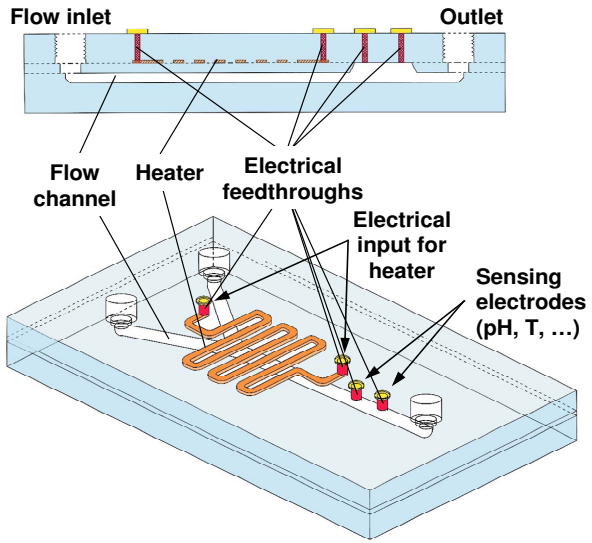
Lateral electrodes cause **leakage** problems;

Adhesives (organic, glass frit) lack tightness & chemical **stability**;

Often additional lithography **cost**



Solution w/ HermeS®



HermeS® is a registered trademark of SCHOTT AG

- Electrical I/Os with superior tightness and excellent p-, T-, pH-, chemical stability
- Unique architectures by 3D integration (e.g. reactor stacks) possible
- Noise-reduction for sensors possible due to minimal contact area between electrode and flow (⇔ wall cladding electrodes)

New Lab-on-a-chip Applications

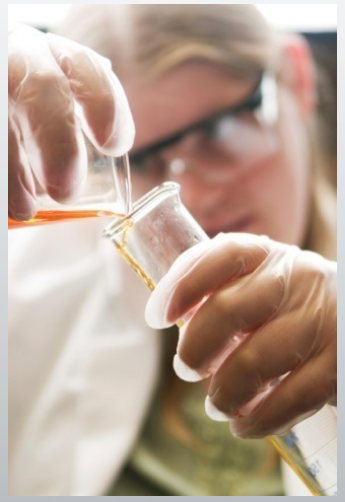
- Integration of sensors in fluidic channels
  - Temperature, conductivity, pH, reference electrodes, heaters, etc.
- Easy connection to IC's, PCB, interface.
  - Miniaturization, simplify packaging, WL compatible

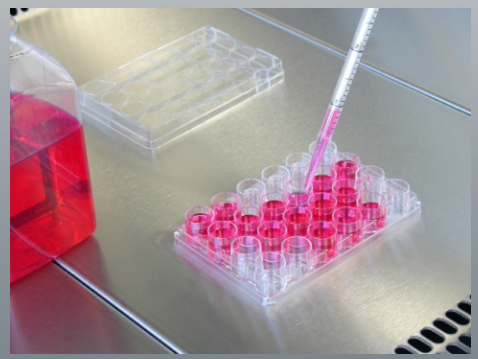
HermeS® and LoaC: Facile method to monitor and control reactions (and conditions) in microfluidics!

HermeS® is a registered trademark of SCHOTT AG

Markets

- Biotechnology
- Chemical Industry
- Pharmaceutical Industry
- Life Sciences
- Air & Space
- R & D
- …



Thanks for your Attention!

Any Questions?

Feel free to visit us on our booth **H18 F4.**