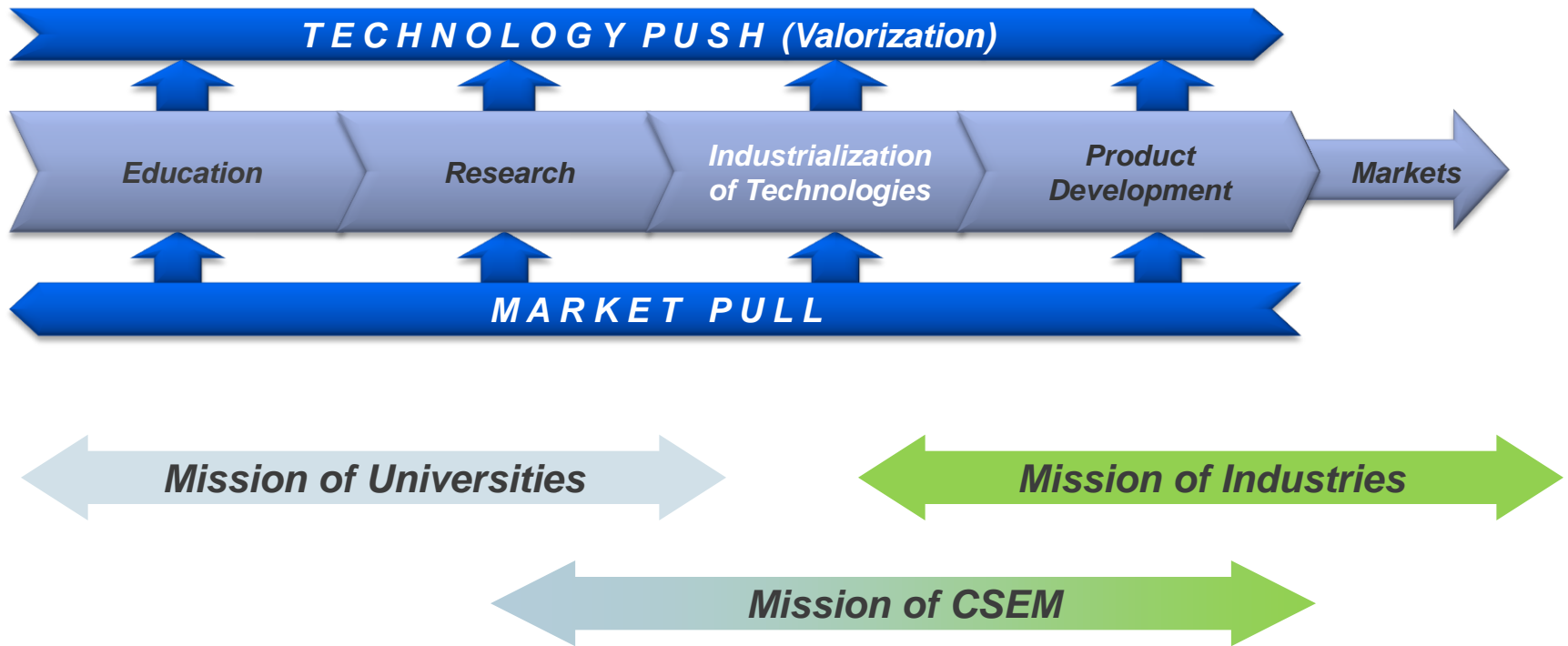


Polytronics at CSEM Basel

Dr. A. Stuck

Our Mission: Technology transfer



CSEM

... is a research and development company, active in the domains of micro-, nano- and information technology

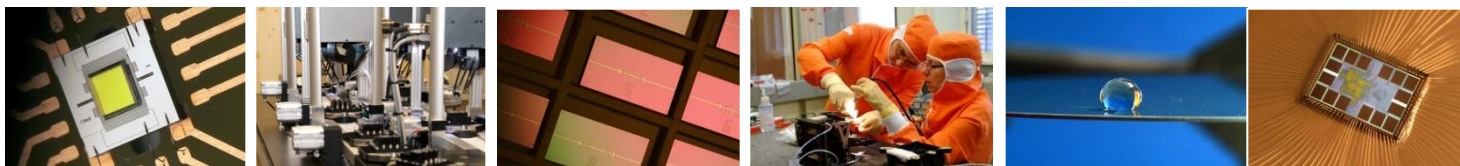
... is a private company, with mainly industrial, but also public shareholders, not-for-profit

... is under contract by the Swiss Government to perform a special mission in micro- and nanotechnology

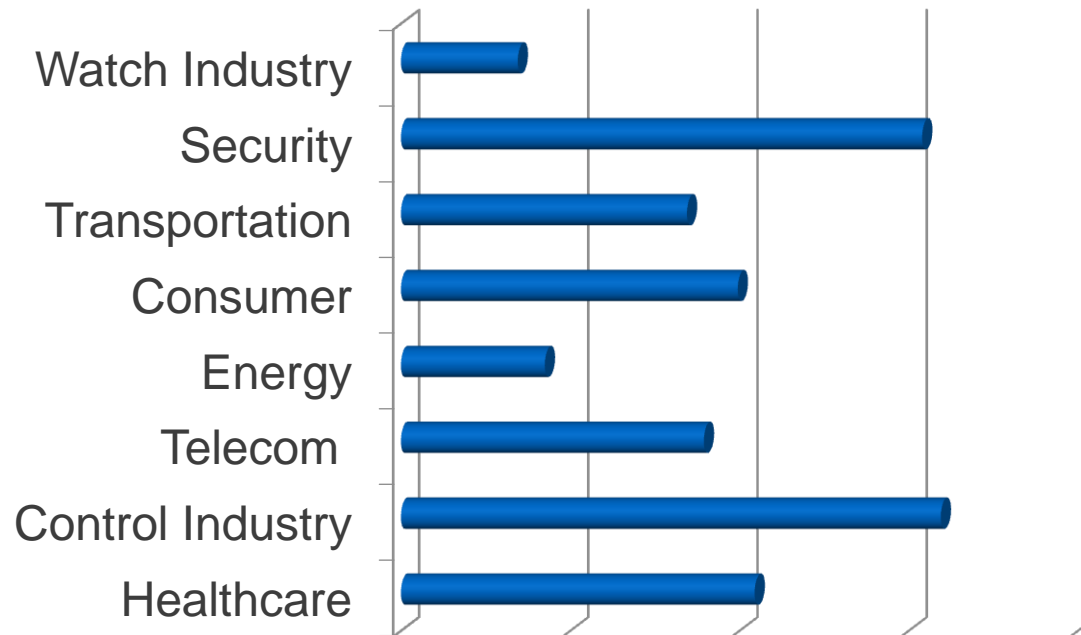
... has revenues (2008) of 66 MCHF, today ~ 400 employees, five centers in Switzerland & international activities

Our technology platforms

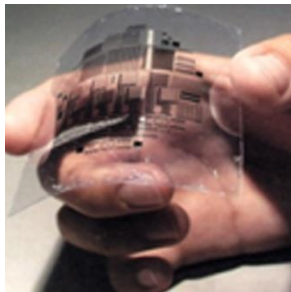
- Microtechnology
- Microelectronics
- Photonics & Optoelectronics
- System Engineering
- Information Technology
- Nanotechnology
- Microrobotics



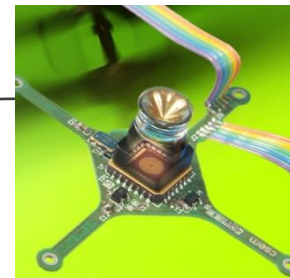
Importance of our market domains



CSEM centers in Switzerland



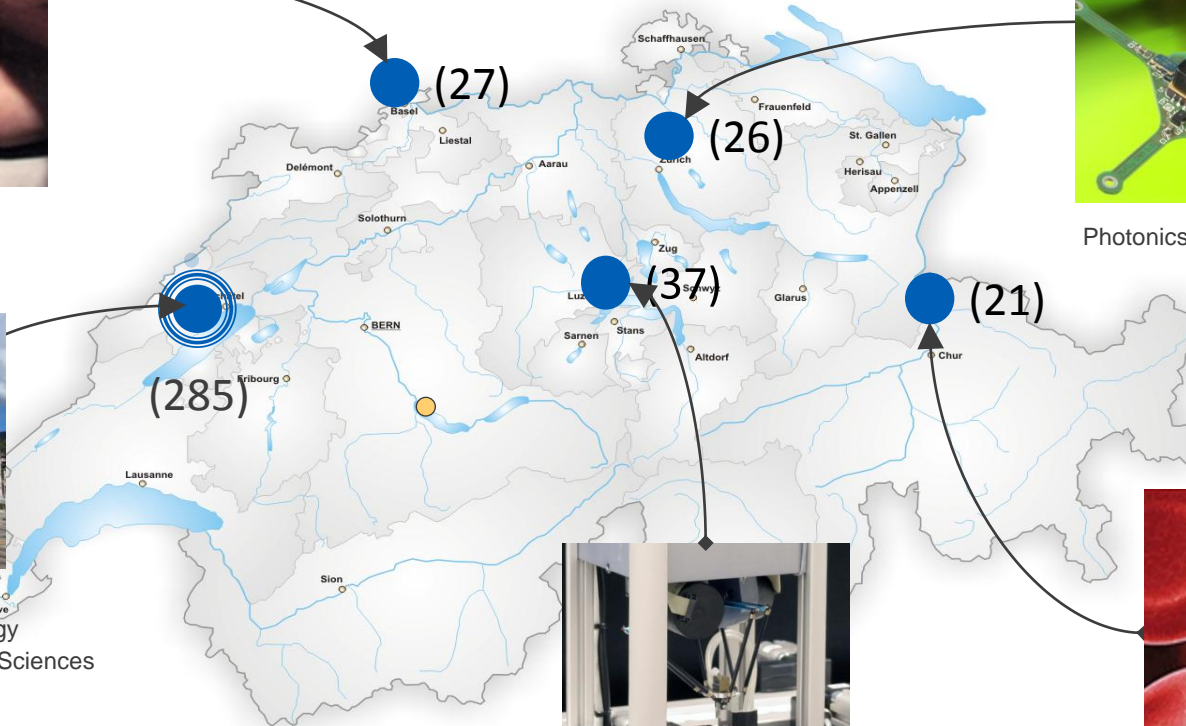
Thin films optics



Photonics



Microelectronics
Microsystems technology
Nanotechnology & Life Sciences
System Engineering
Time & Frequency

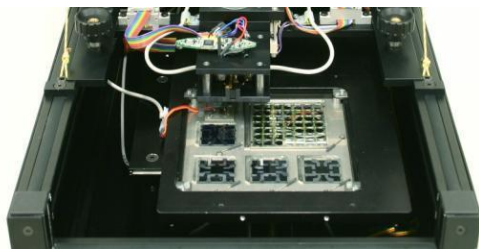


Microrobotics



Nanomedicine

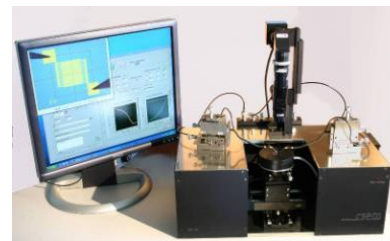
Thin Film Optics- Capabilities



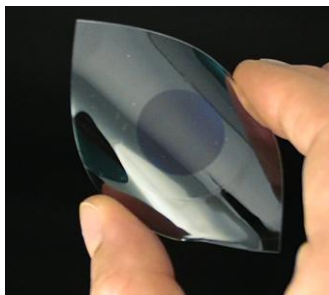
Design & realize dedicated R&D equipment



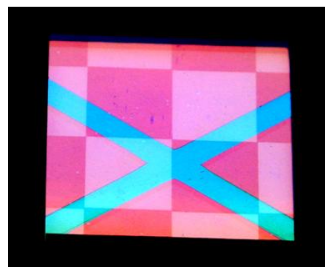
Combinatorial, high-throughput fabrication and testing



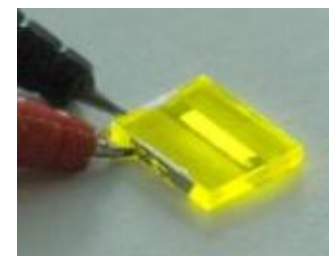
OLED; OFET; OPV solution processed; inkjet & testing



Micro-Nanostructuring: Large area manufacturing technologies



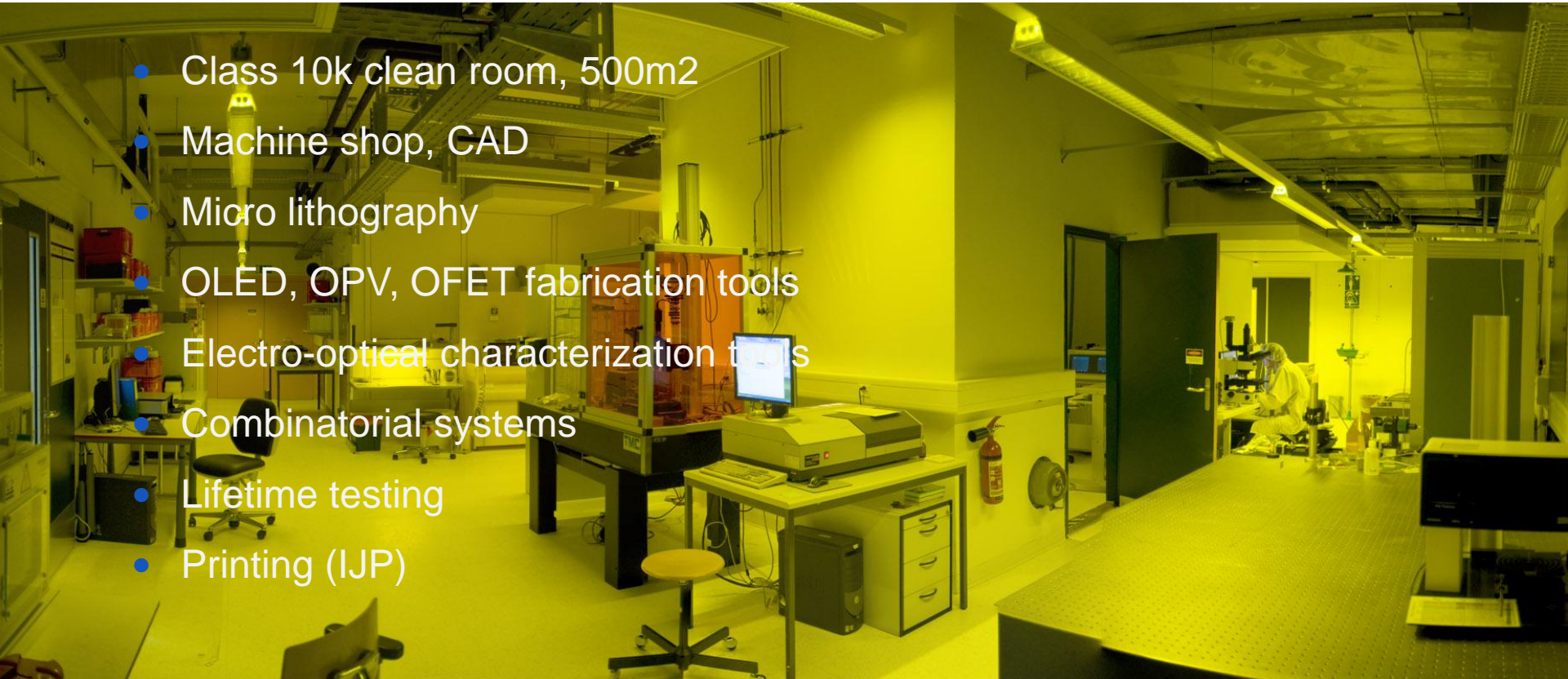
Coatings: optical effects permeation testing



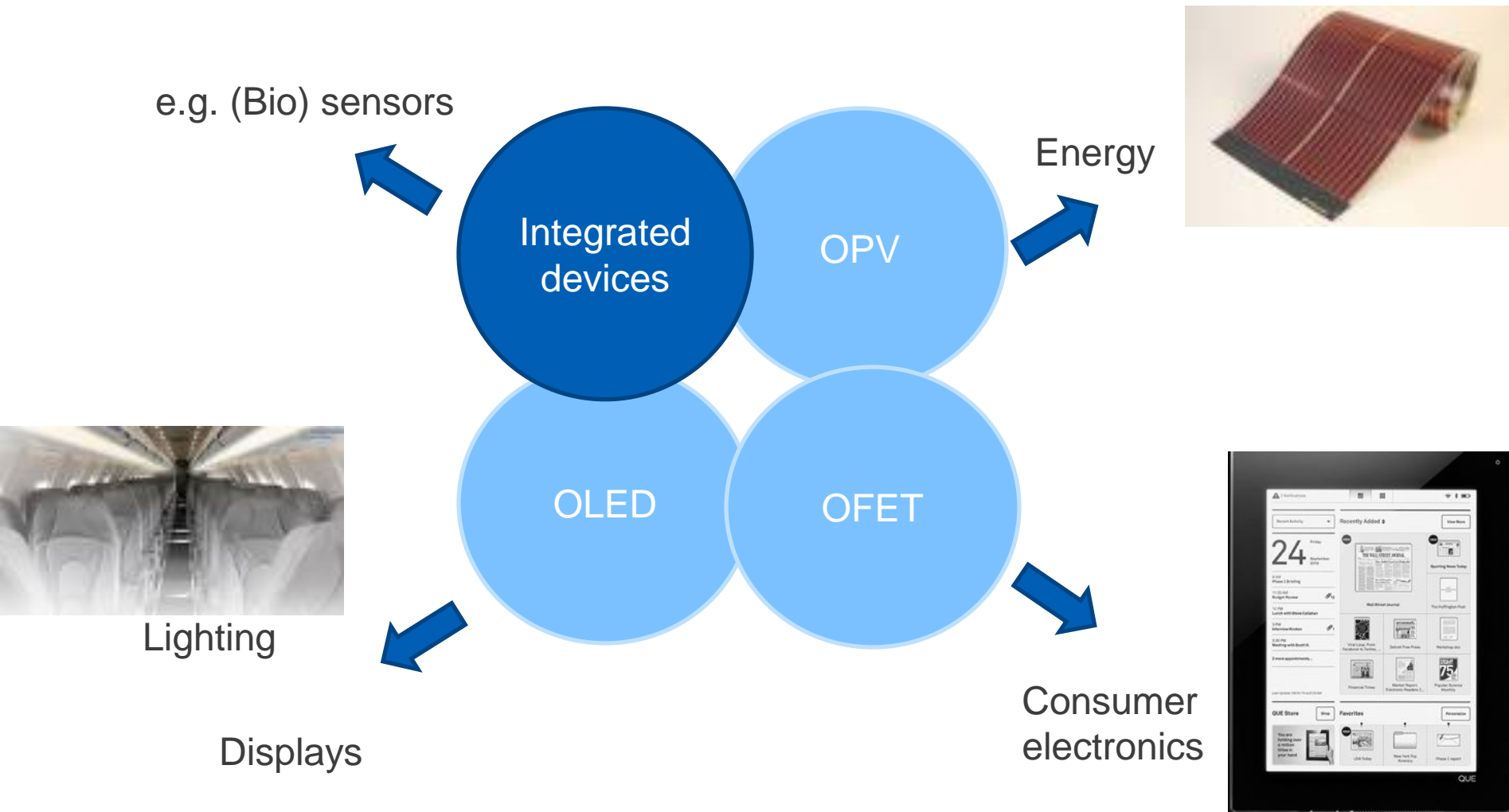
Device design, integration and manufacturing

Polymer Optoelectronics Facilities

- Class 10k clean room, 500m²
- Machine shop, CAD
- Micro lithography
- OLED, OPV, OFET fabrication tools
- Electro-optical characterization tools
- Combinatorial systems
- Lifetime testing
- Printing (IJP)

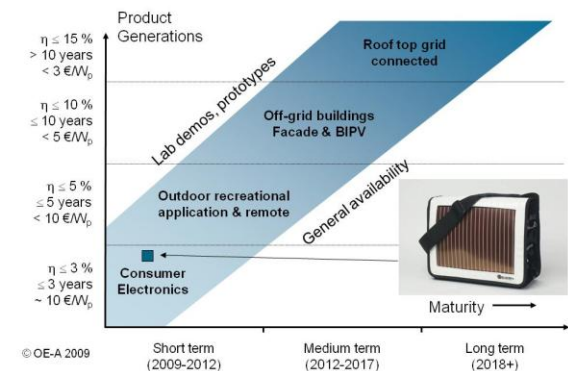
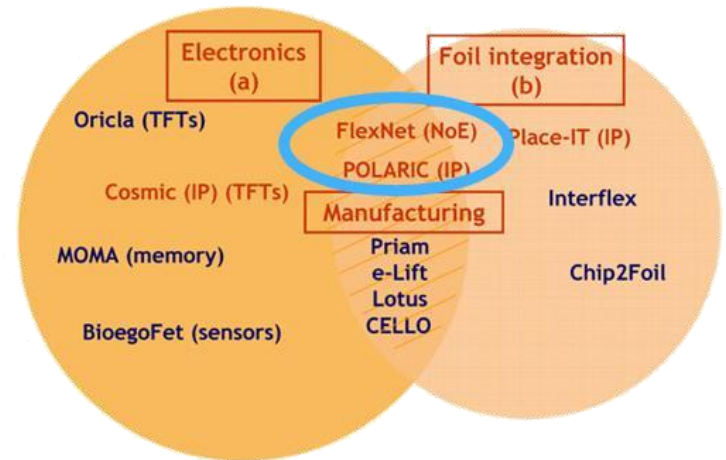


Application areas



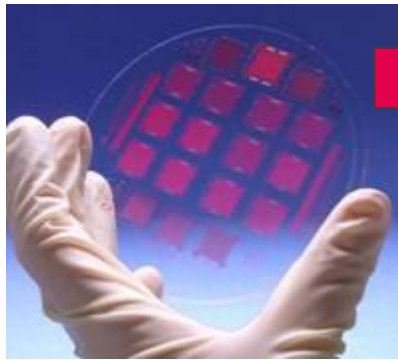
CSEM Basel- Organic electronics – EU network

- CSEM Basel participates (WP leader, Task leader) in several EU projects:
 - POLARIC (IP)
 - PHOTO-FET (STREP)
 - FLEXNET (NoE)
 - APOLLO (EU frame – Swiss funded)
- OE-A: CSEM is representing the OPV roadmap 2011 discussion group
- OPERA: leading encapsulation work group

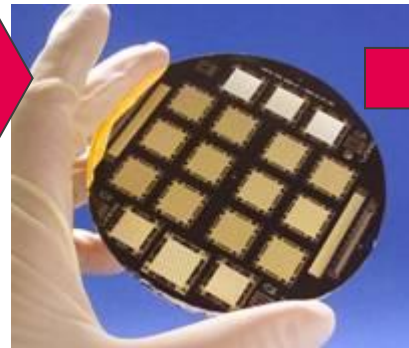


Process and Technology → Large Volume Fabrication

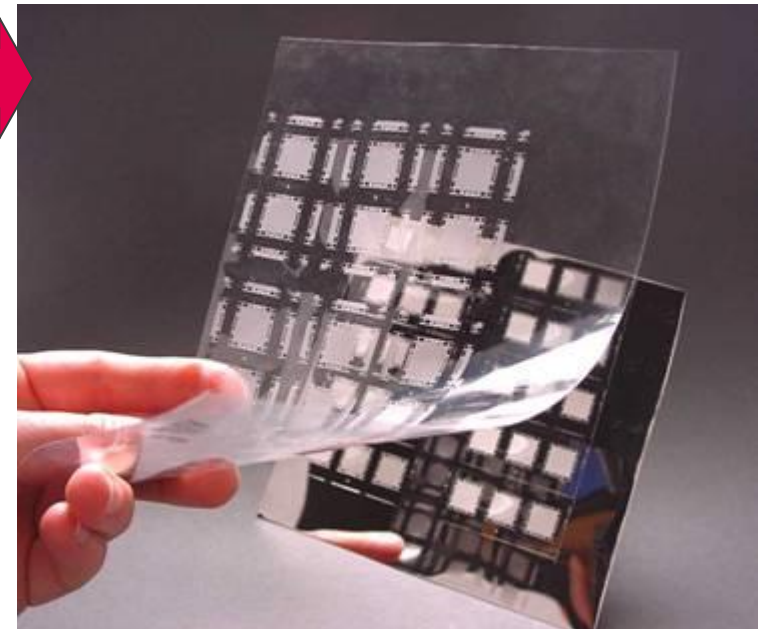
Nano- and Micro-Optical Structures for Large Volume Production



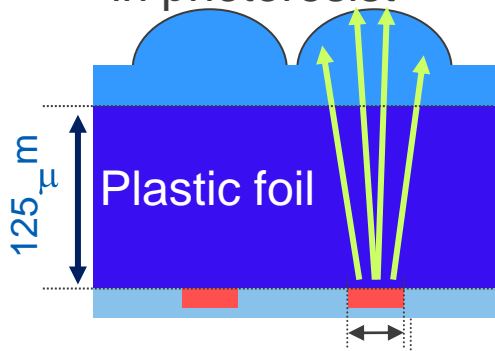
Original lens arrays
in photoresist



Electroformed
Nickel Shim



Recombined, large area shim and
hot embossed foil.



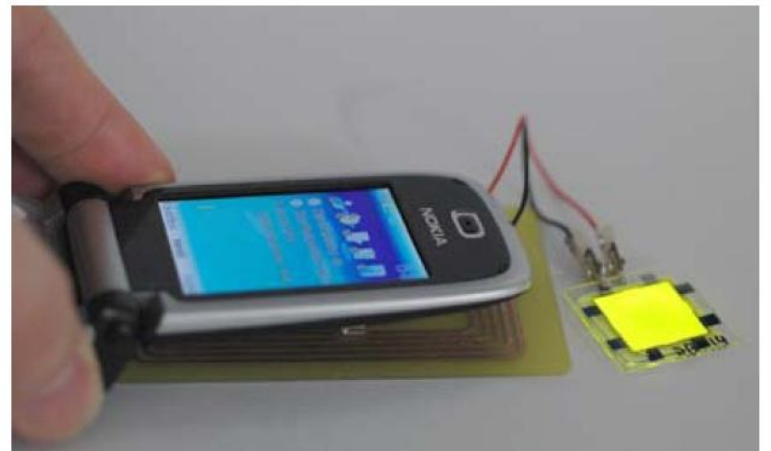
Pixelated OLEDs ($50 \times 50 \mu\text{m}$)

Advantages:

*Custom tailored far-field pattern, thin,
flexible, light weight*

Wireless-Powered OLEDs

- Receiver: RF-antenna, rectifying diode and capacitors, OLED test cell
- Emitter: mobile phone with near field communication (NFC) with transmission at 13.56 MHz
- All components are printable: antenna, diodes, capacitors, OLED element.



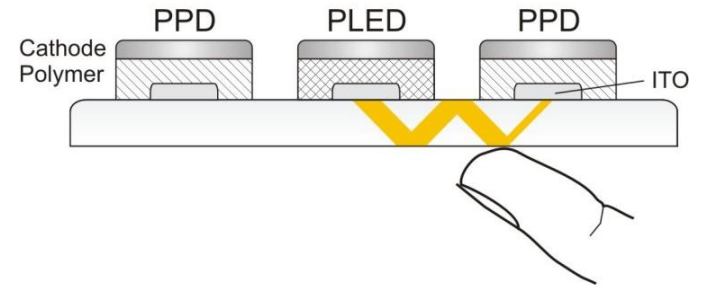
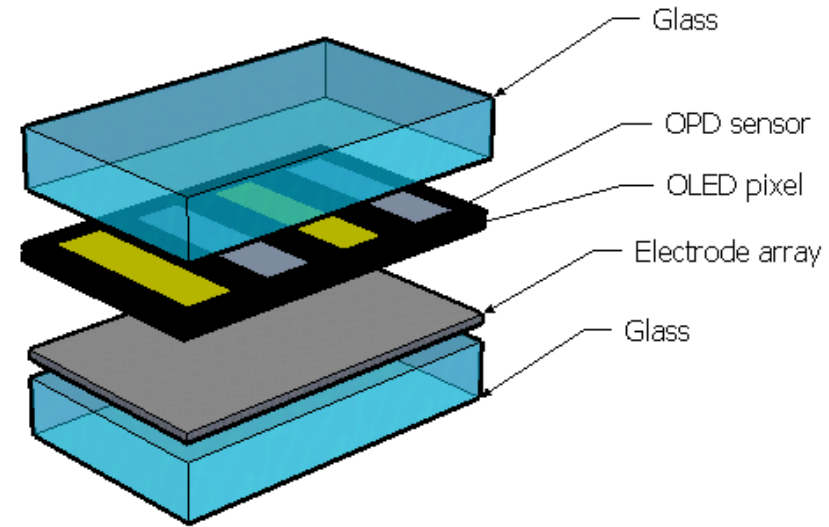
L. Bürgi *et al.*



OLED touch screen integration

- Optical sensor by monolithic integration of polymer LEDs and PDs
- Proof of concept :

OLED touch screen



The people who do the work



Thank you for your attention!

Our start-ups

- Revenues (2008)
More than 120 MCHF
- VC Capital (1998-2008)
More than 190 MCHF
- More than 500
new jobs created



STDienst GmbH

