

Ultra-compact microscopy

Integrated microsystems for large area observation



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Aim

Compact and highly integrated microscopy systems for analyzing large area objects or tiled fields of view in different application scenarios

Characteristics & Technology

- Array of parallel miniaturized microscopes
- Object field size ~ image sensor size
- 1D / 2D scanning with subsequent stitching for continuous object fields
- Current system parameters
 - numerical aperture 0.3
 - magnification 10x
 - optics track length < 10 mm
 - different illumination modes possible
- Wafer scale replication of the optical elements (polymer-on-glass)
- No active alignment during assembly

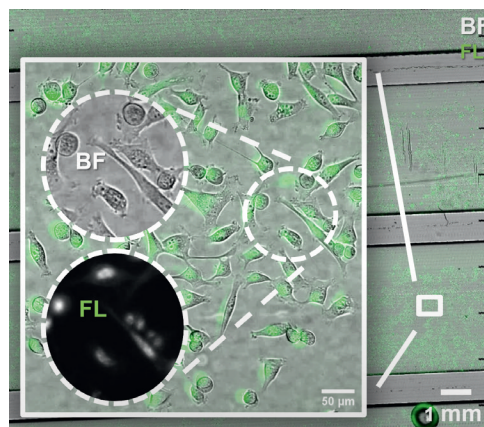
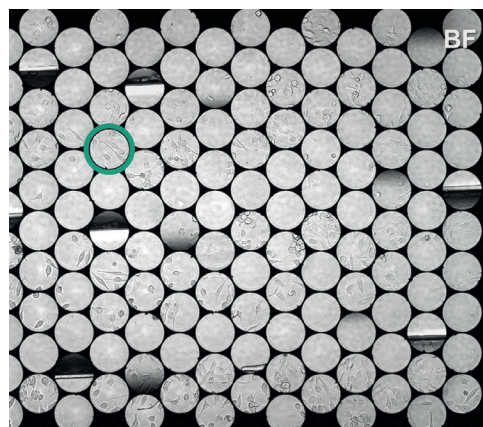
Applications

- Imaging in life sciences (cell cultures and sorting, histology, microfluidics, ...)
- Optical inspection and machine vision
- Mobile and integrated microscopy

Our offer

- Feasibility and design studies
- Adapt system geometry and specifications to individual applications and/or specific image sensors
- Explore / optimize illumination options
- Micro-optics:
 - Master structure preparation
 - Replicate polymer-on-glass array optics
 - System integration and testing
- Software adaptation
- Opto-mechanical system design & integration

Array of mini-microscope-objectives in comparison to a classical single aperture 10x objective.



Raw image (left) & stitched image (right) of immuno-fluorescent HeLa cells
BF – bright field FL – fluorescence

Contact

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