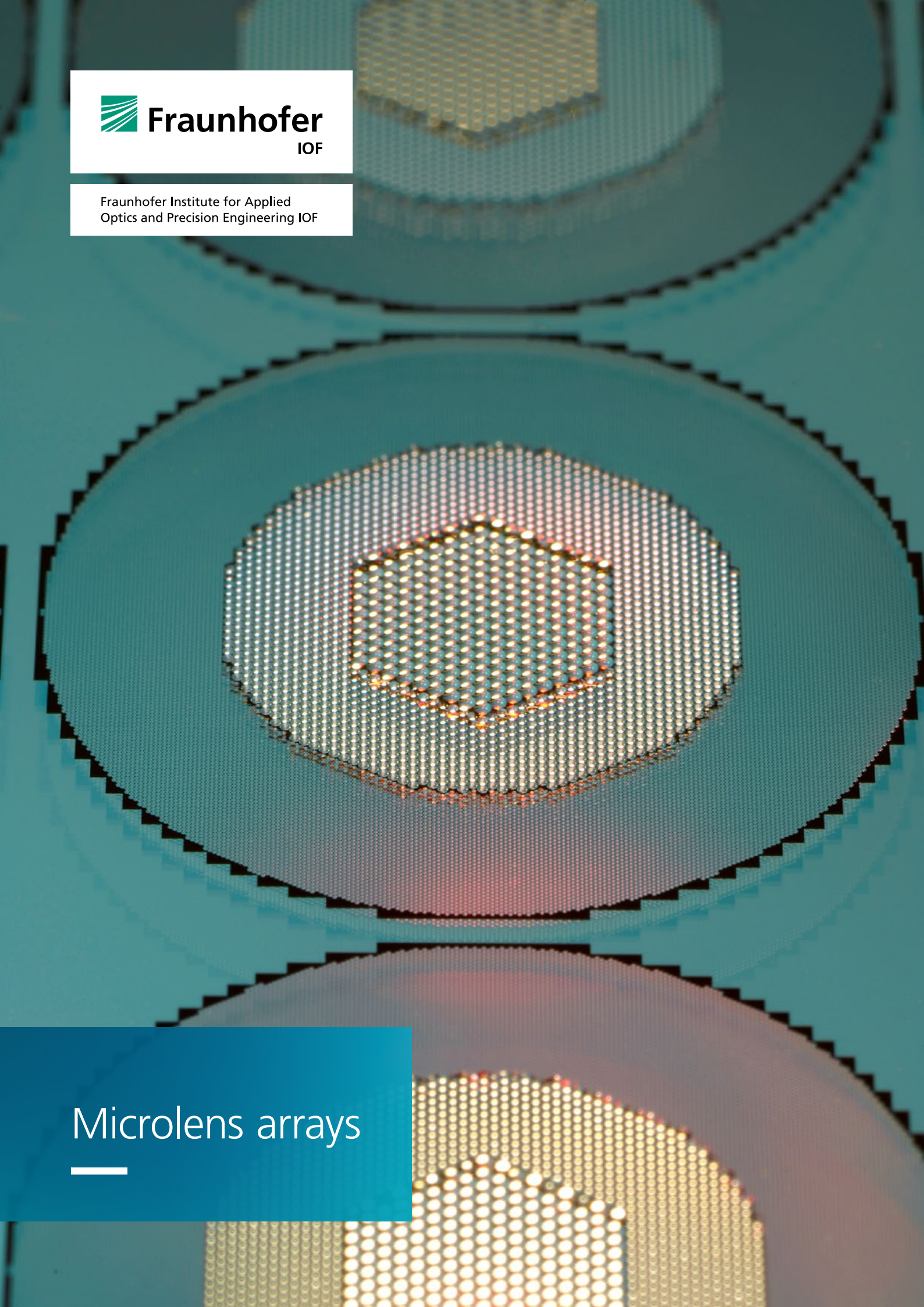
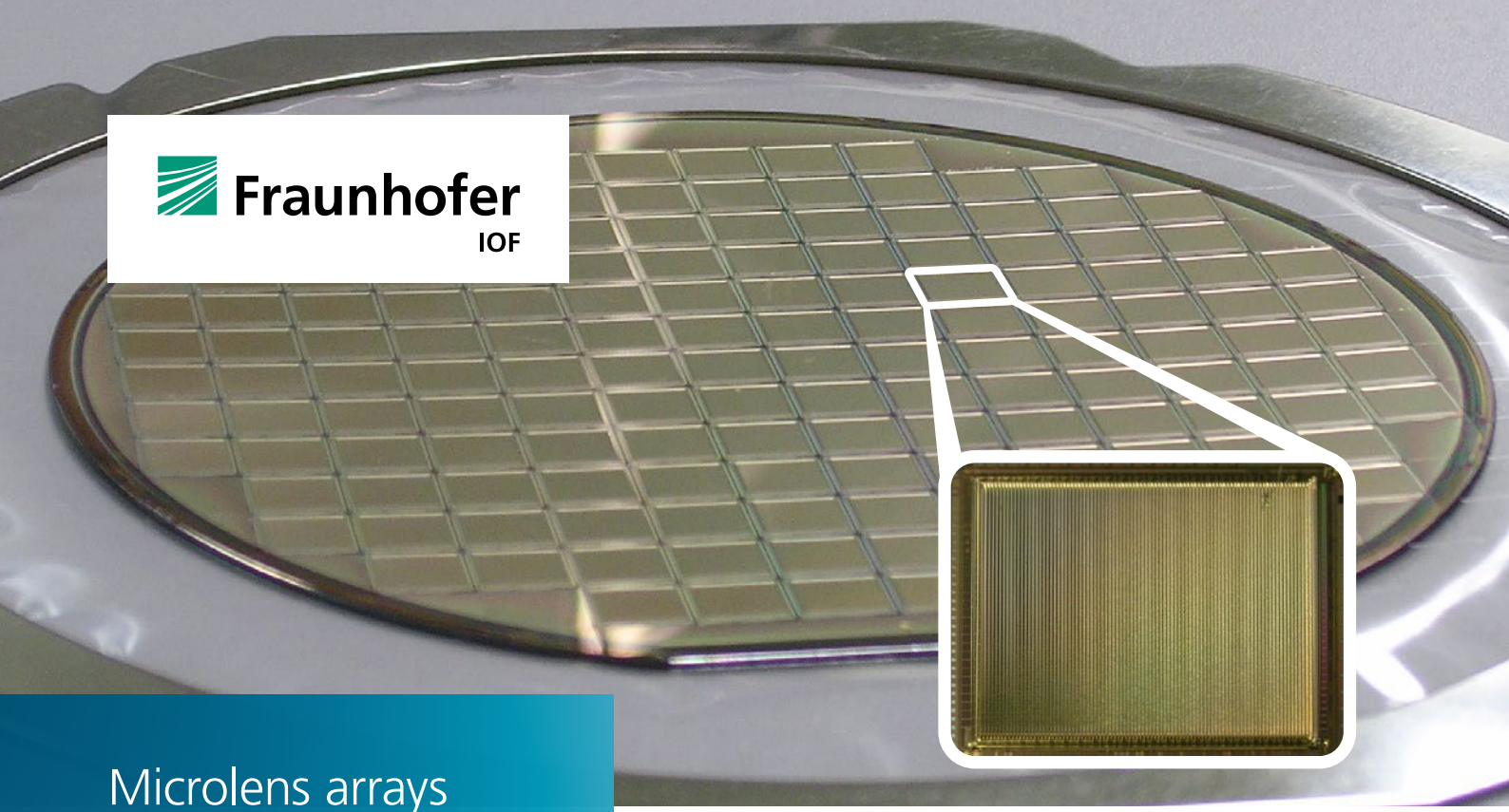


Fraunhofer IOF

Fraunhofer Institute for Applied Optics and Precision Engineering IOF

Microlens arrays



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Microlens arrays

Top: Si CMOS wafer with integrated lens arrays on the detector area via selective UV curing.

Cover: Double-sided beam homogenizer featuring three distinct zones with NA values of 0.1, 0.2, and 0.3, including a buried aperture array.

Our service:

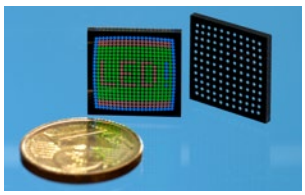
We offer mastering and prototyping of custom lens arrays, utilizing advanced photolithographic technology and UV molding.

Mastering (available as an independent project):

- Creation of polymer structures or photoresist on glass or silicon substrates for applications such as soft tooling and electroplating.
- Structure field sizes ranging from Ø4 to Ø8 inches, with recent expansions up to Ø12 inches.
- Exceptional lateral precision in the sub-micron range.
- Precision control of lens profiles, including conical constants.
- Maximum structure height up to 200 µm.
- Capability for parameter variation, including chirped or interleaved arrays.
- Fabrication of additional features, such as marks, test structures, and spacers for wafer-level integration.

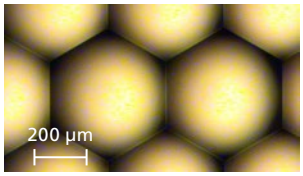
UV molding (prototypes, small series, technology transfer to partner companies):

- Fabrication of UV polymer structures on glass substrates.
- High precision and structural stability.
- High alignment accuracy, including front-to-backside alignment.
- Integration with aperture structures.
- Fabrication of achromatic doublets.
- Availability of various coatings, including anti-reflective (AR) coatings.
- Applications in VIS-NIR for fiber, laser, and LED collimation or illumination, field-of-view matching, fill factor enhancement of detector arrays, and miniaturized imaging optics (e.g., projection systems, cameras, sensors).



Chirped lens array developed for LED illumination systems

High fill-factor lens array mastered through lithography, reflow, and reactive ion etching (RIE).



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