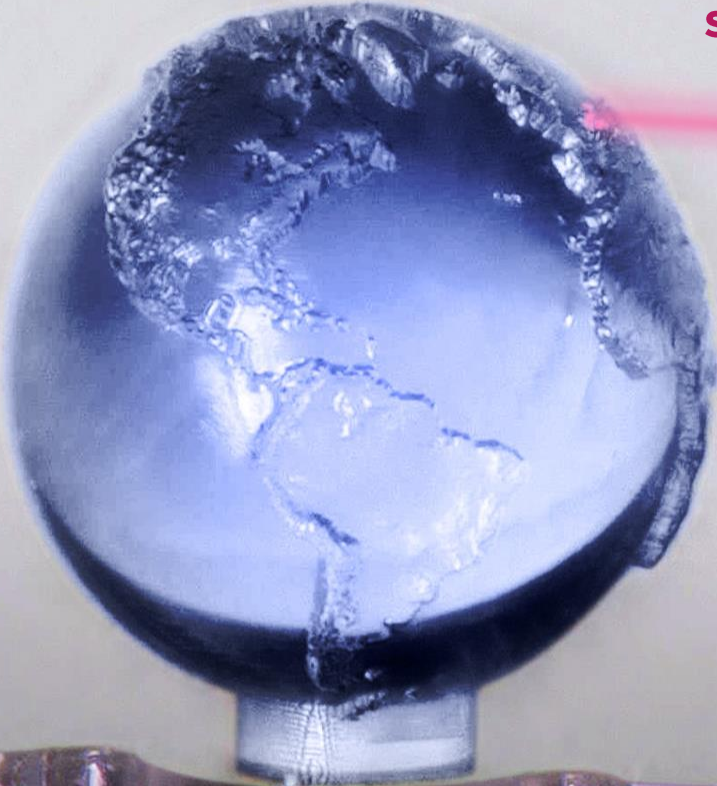


Bridging the world to photonics

Freeform structure



Fiber array

Reproducible beam shaping

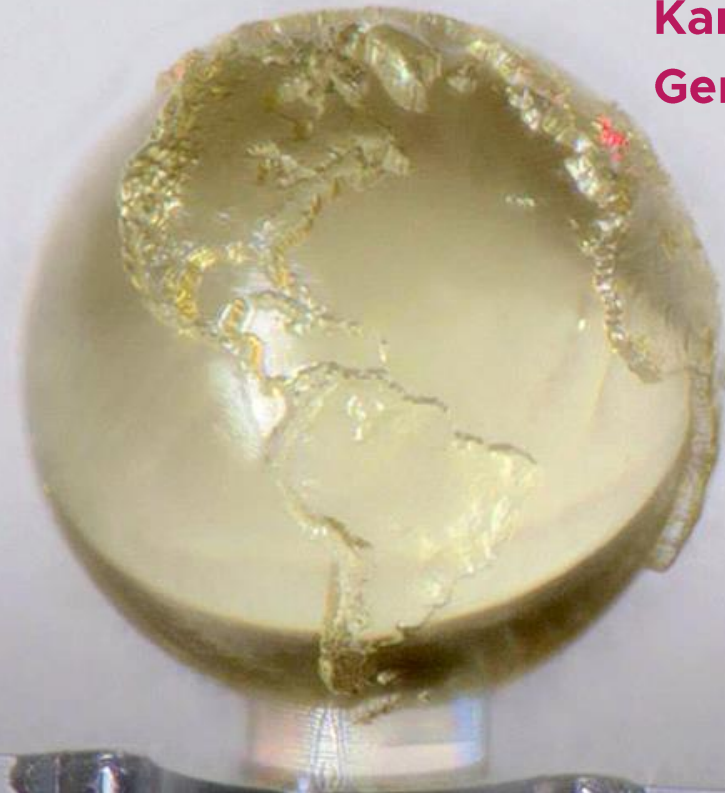


Freeform optics

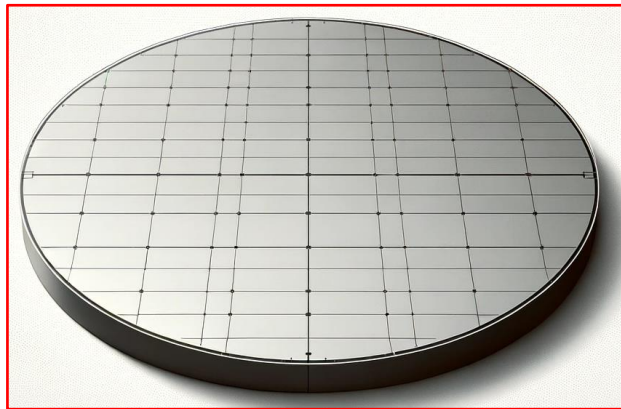
High precision alignment

Unedited
picture

Real focus at
Karlsruhe,
Germany

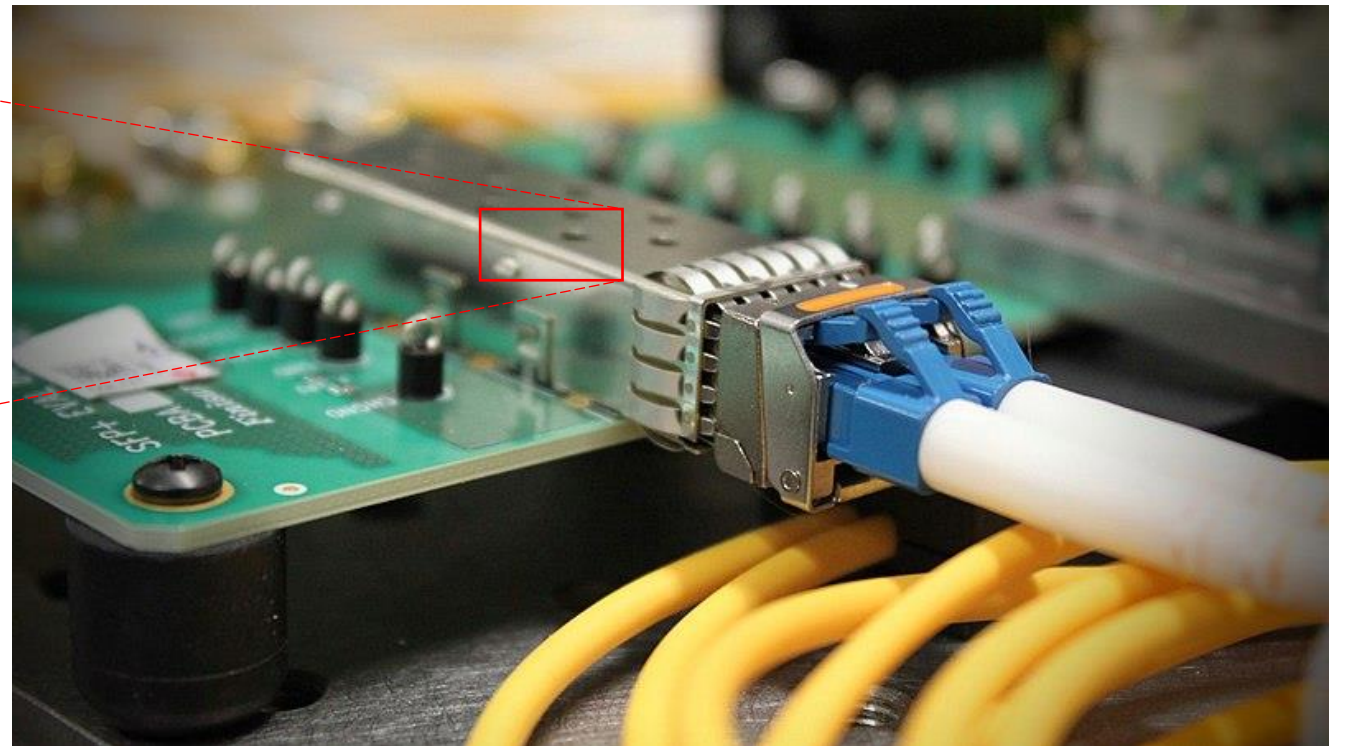


Relevance of wafer-level testing



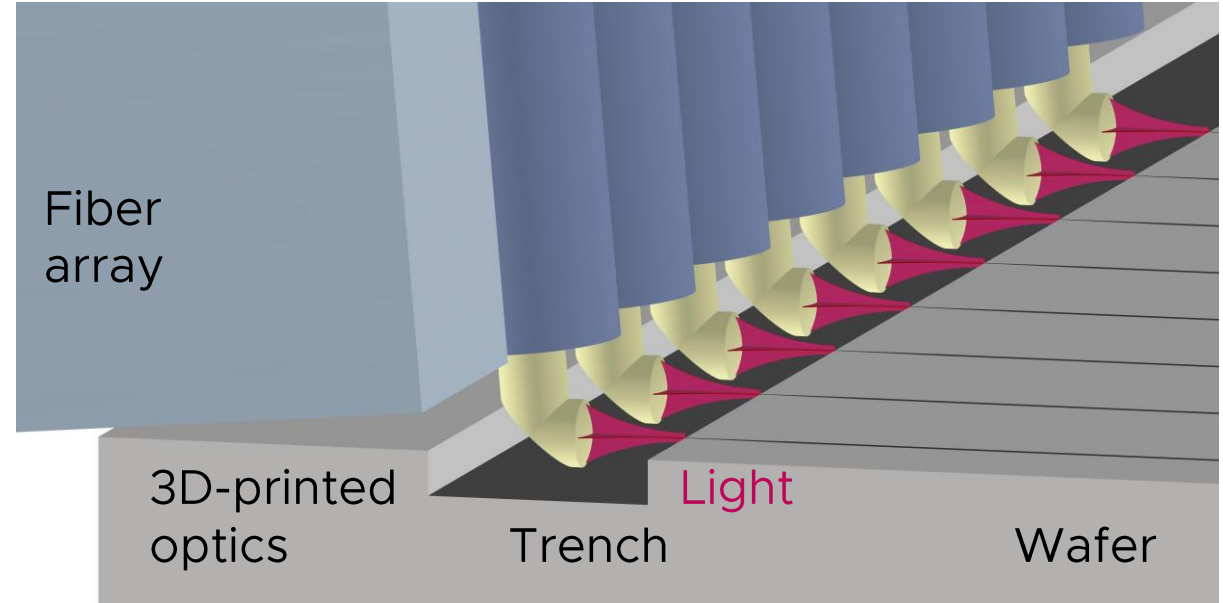
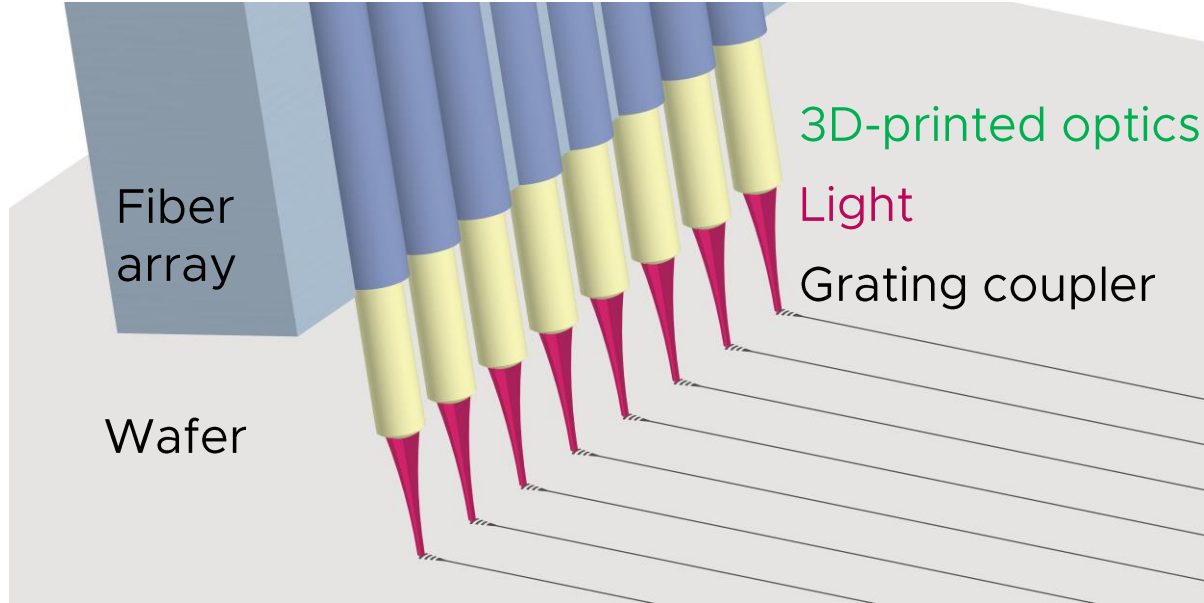
SiP portion of total
cost: **1.2%**

Yole Developpement Silicon Photonics Report 2021



https://en.wikipedia.org/wiki/Small_Form-factor_Pluggable#/media/File:SFP_board_2.jpg

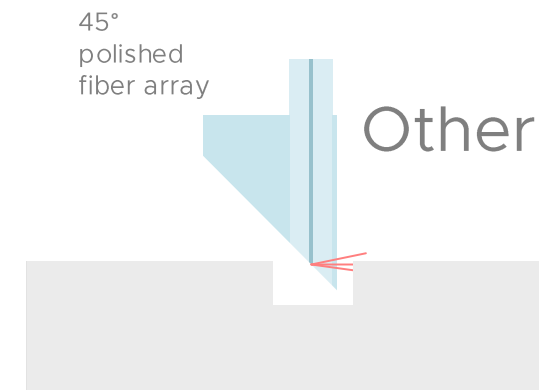
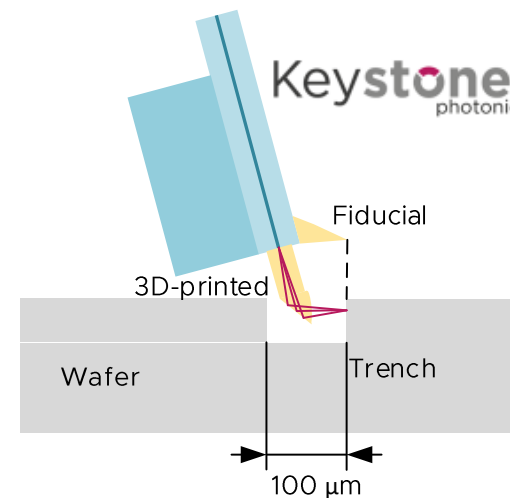
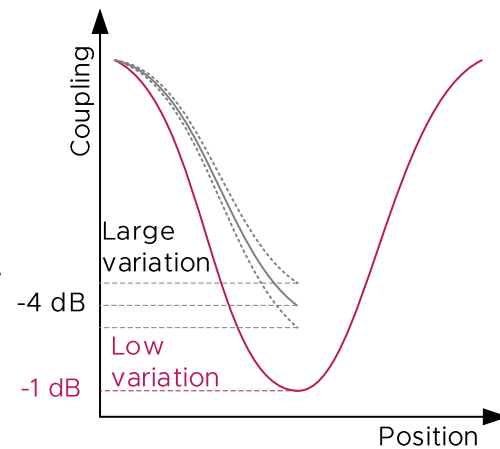
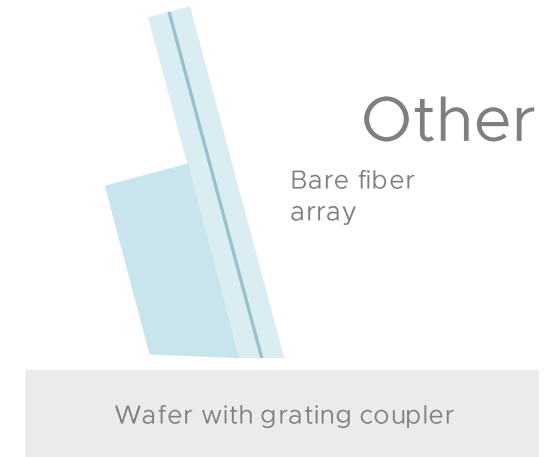
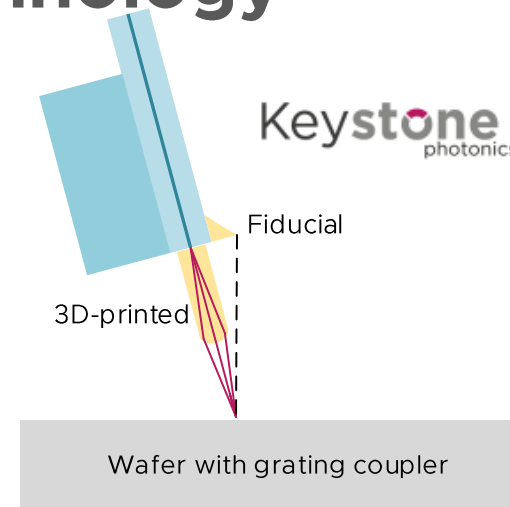
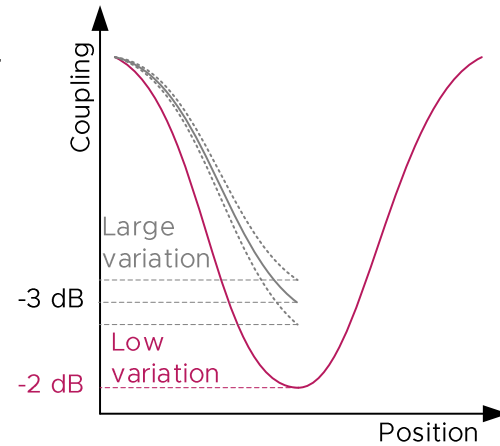
Application: Wafer-Level Testing in Manufacturing



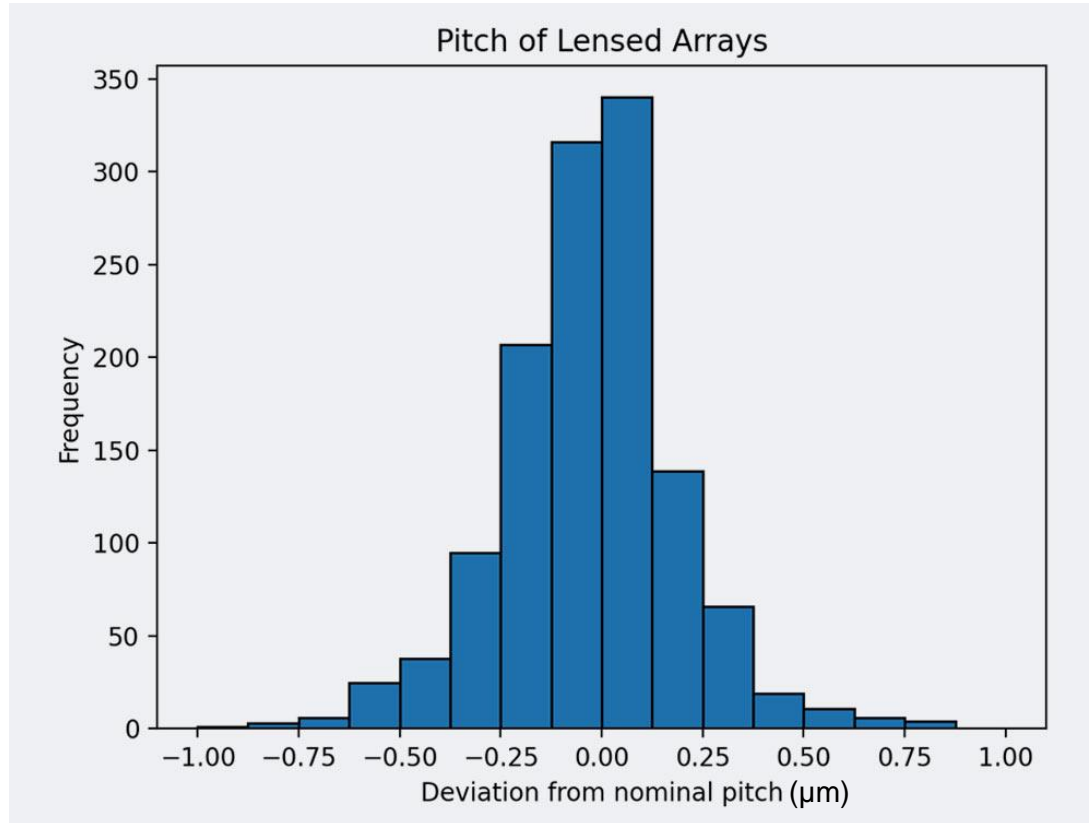
Comparison with Conventional Technology

Keystone Probes Advantage

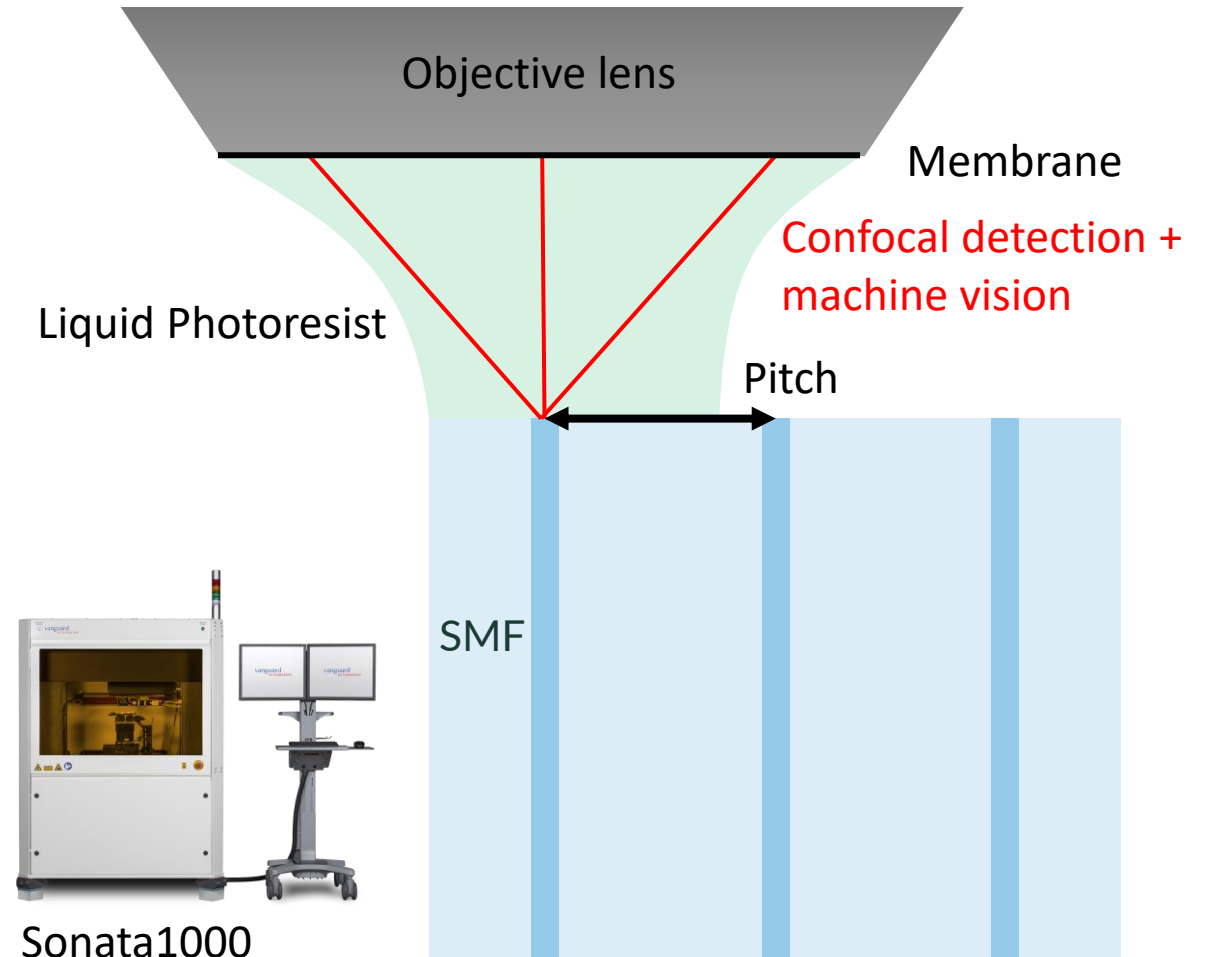
Reproducible	Detect device variation
Multi channel	Fast
Good coupling	BER testing
Fiducial	Simple alignment
PM-Option	No Pol alignment
Large working distance	Robust testing method



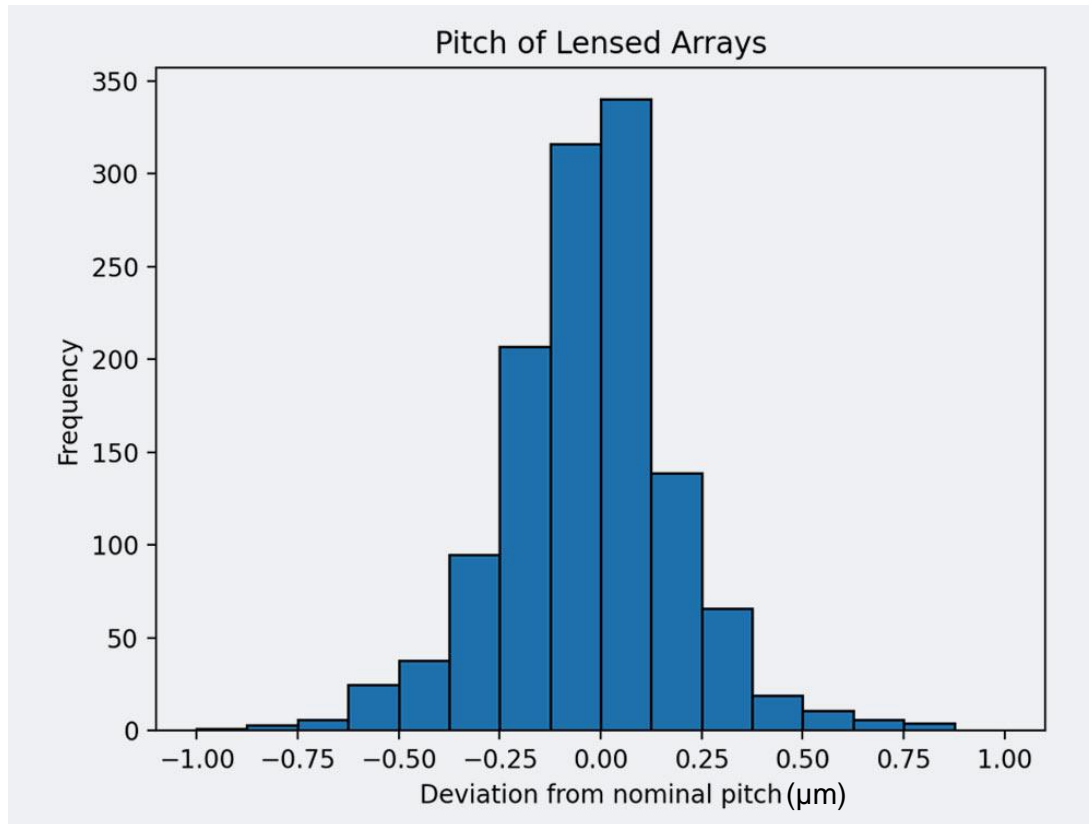
In-Situ Fabrication



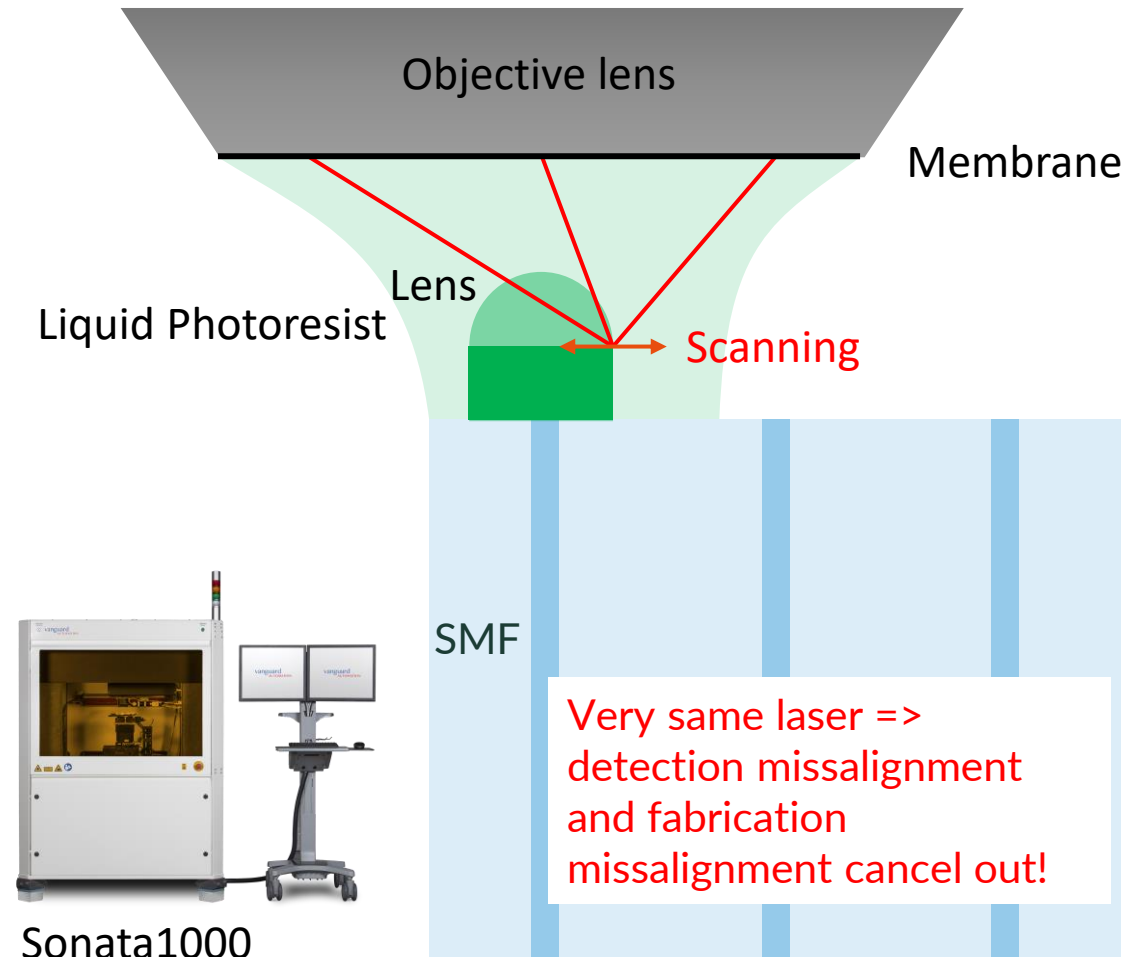
Data: Vanguard Automation



In-Situ Fabrication

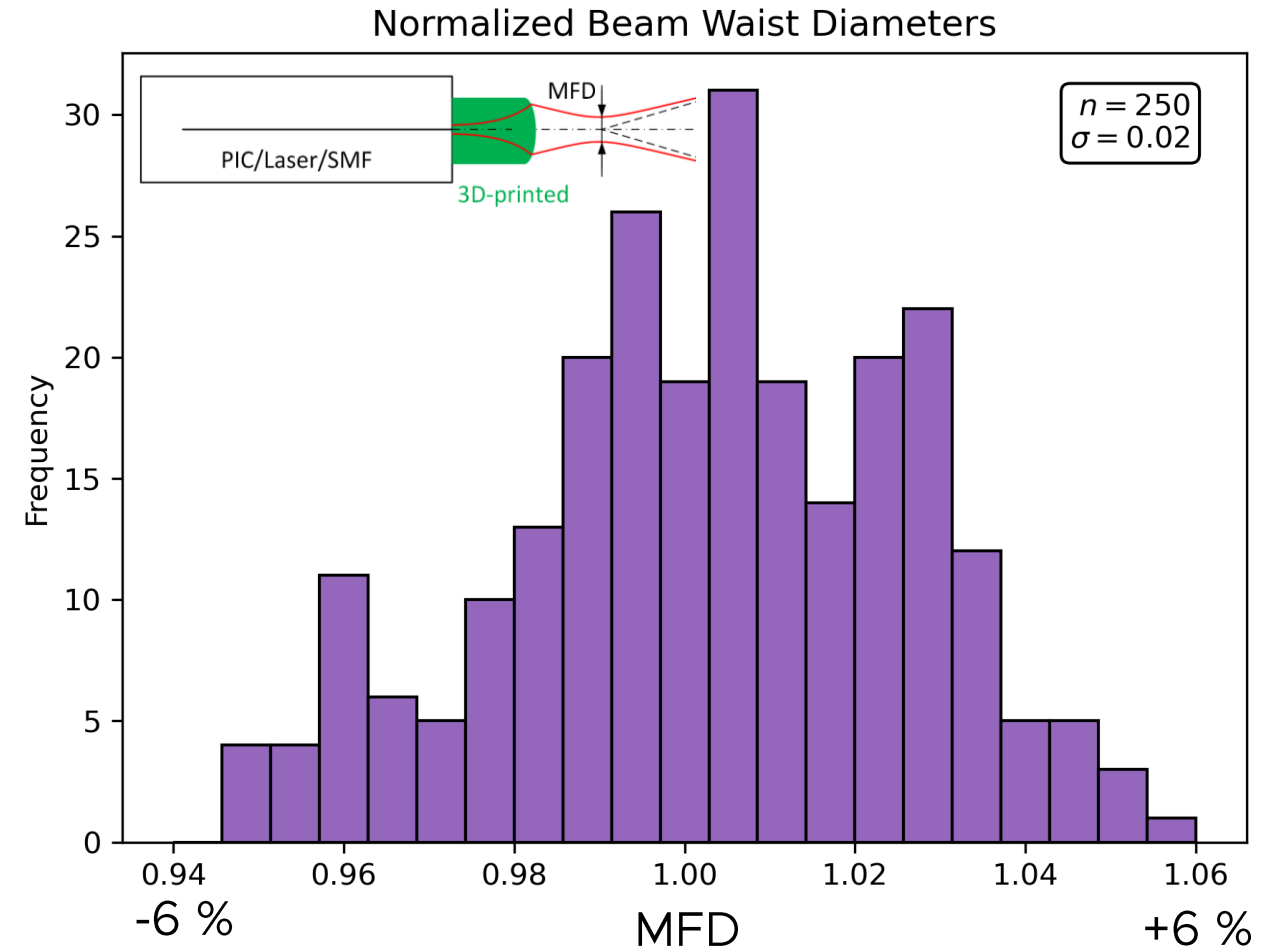
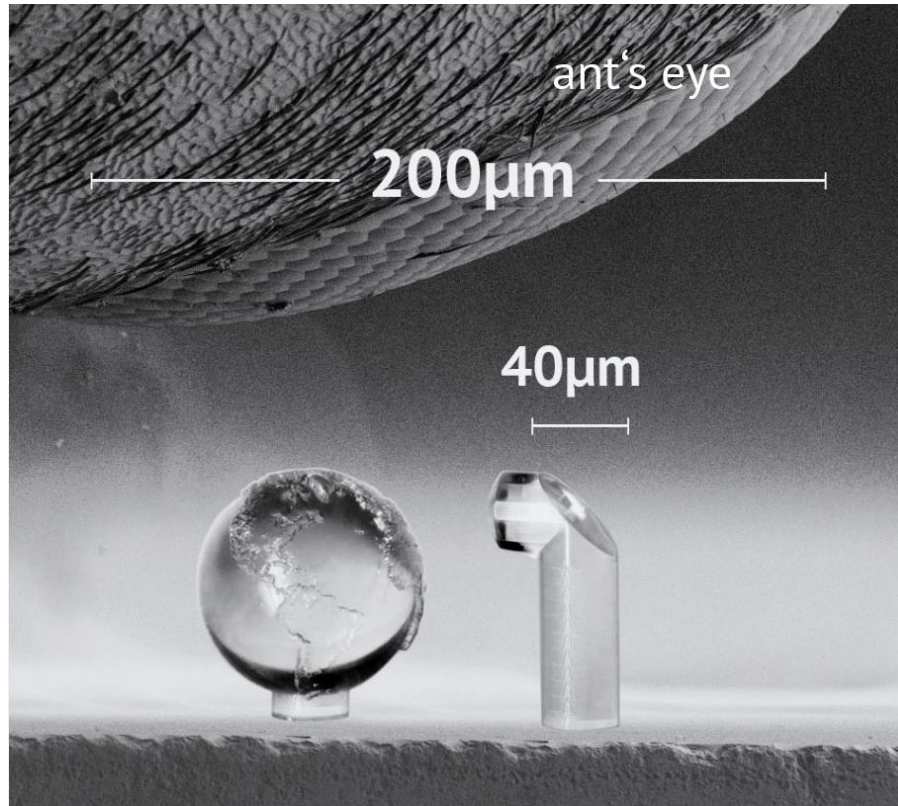


Data: Vanguard Automation



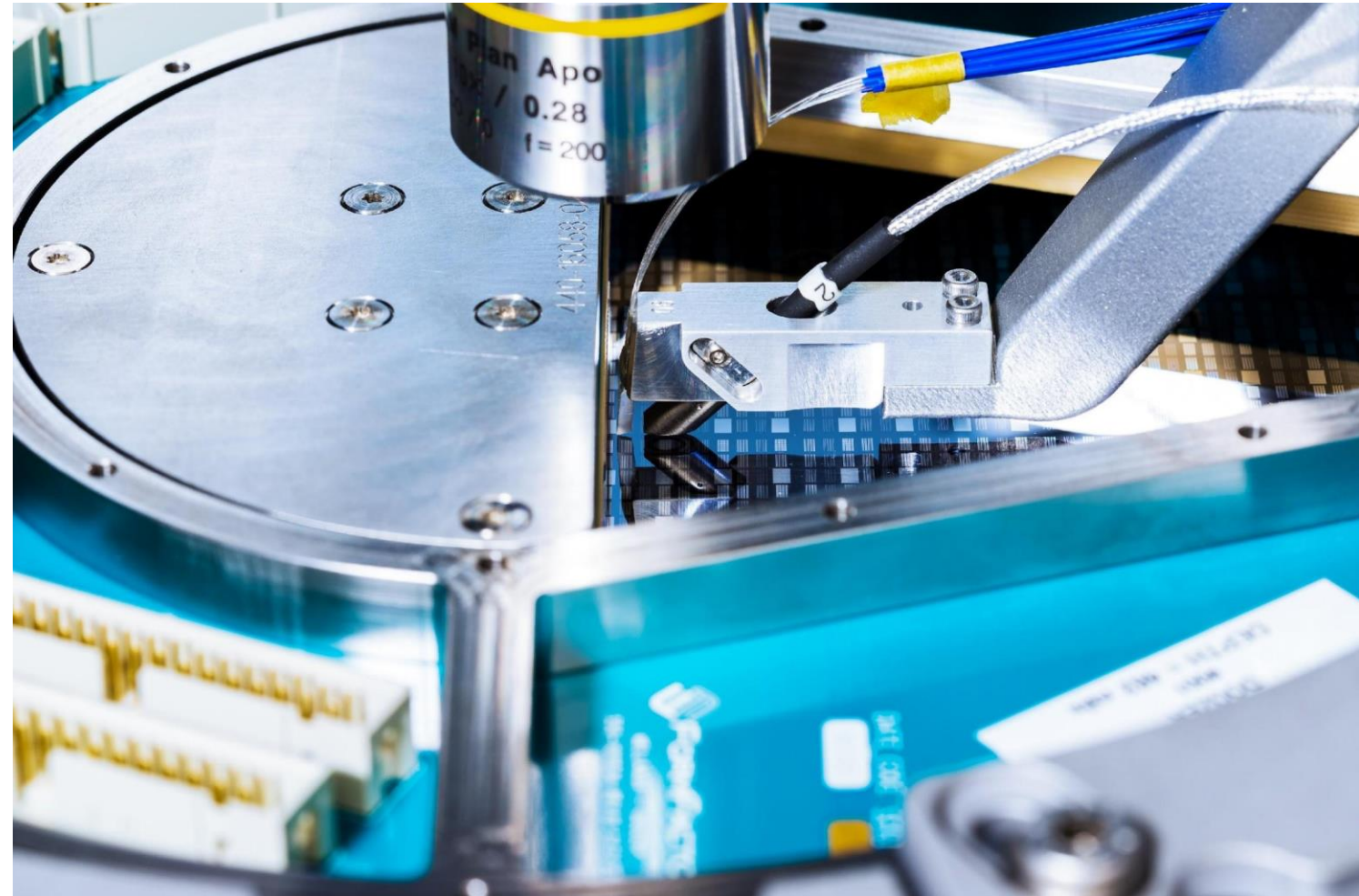
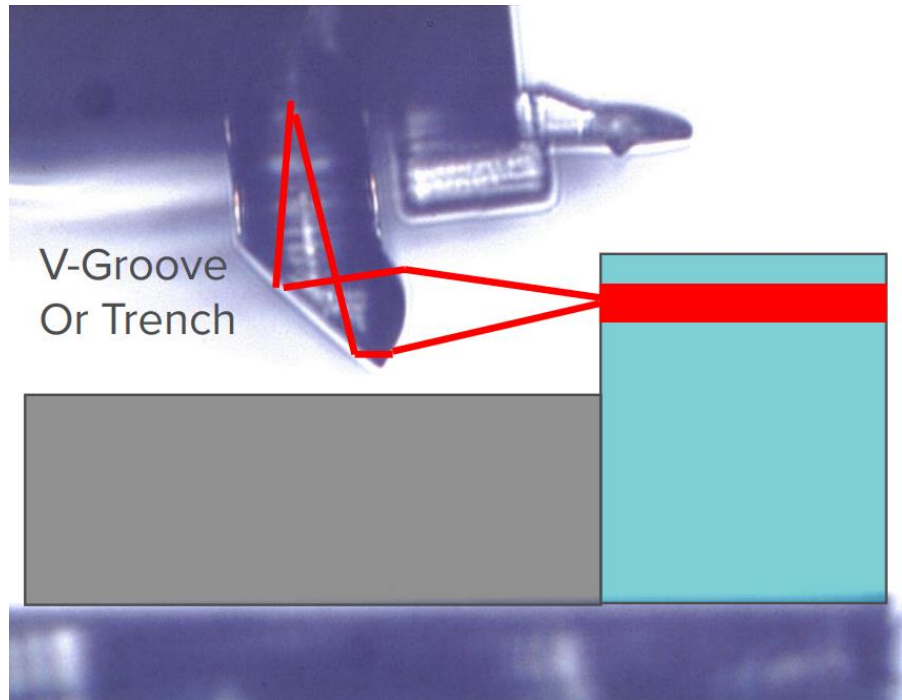
Very same laser =>
detection missalignment
and fabrication
missalignment cancel out!

Small & Precise



Application: Wafer-Level Testing in Manufacturing

Coupling loss is 1.47dB/facet

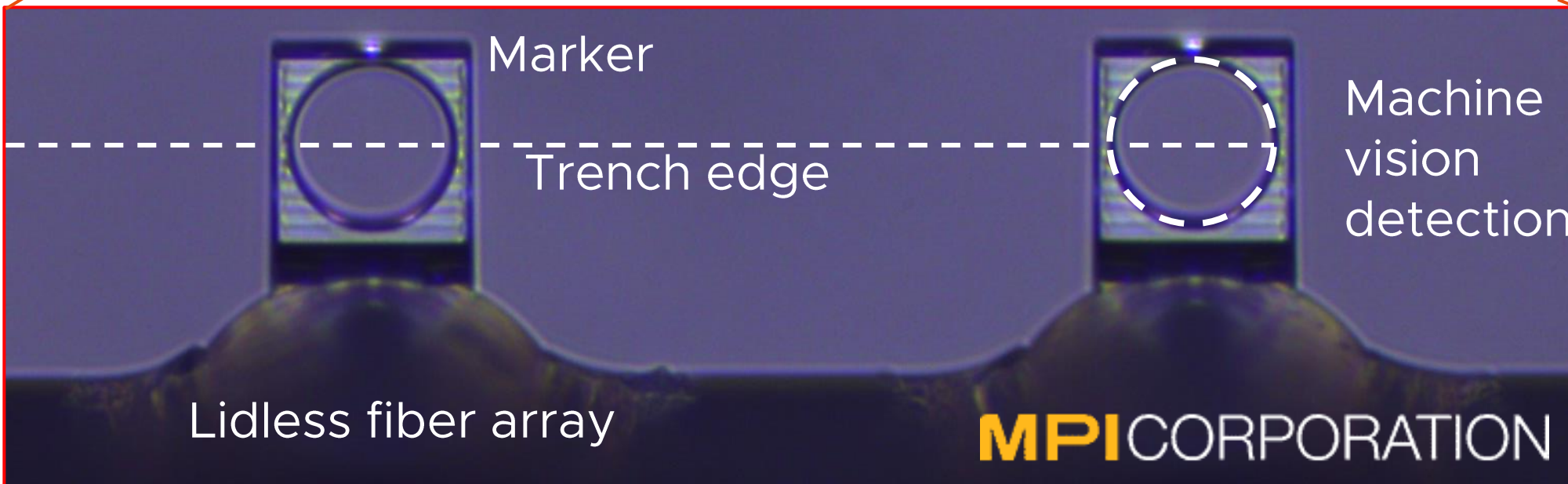
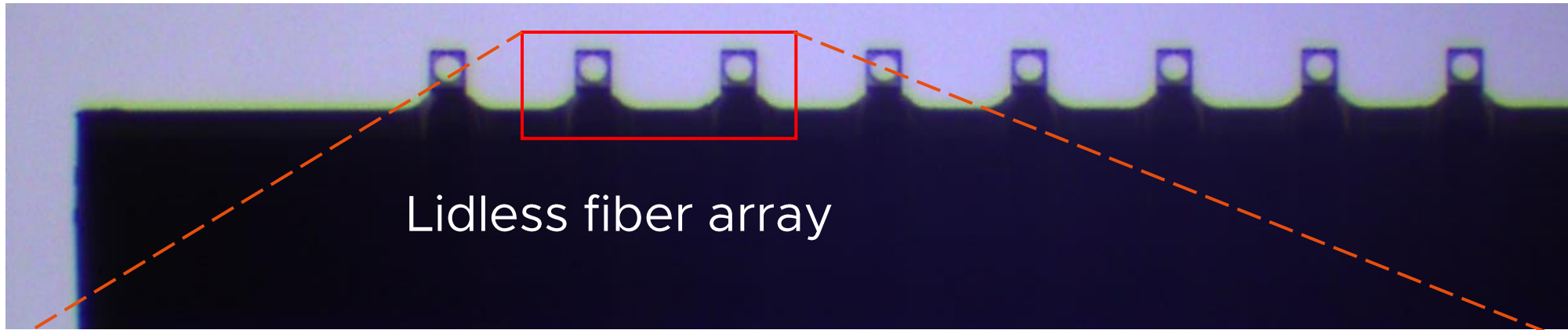


Available from Formfactor

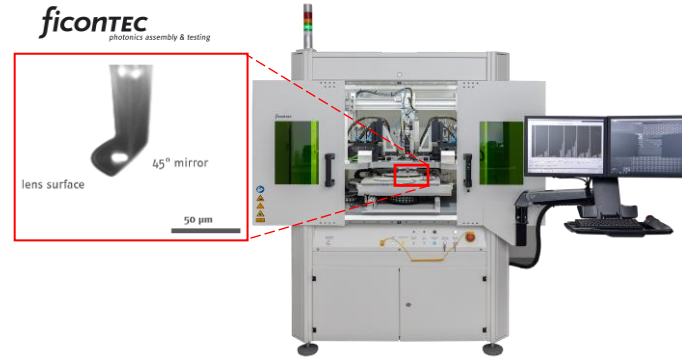
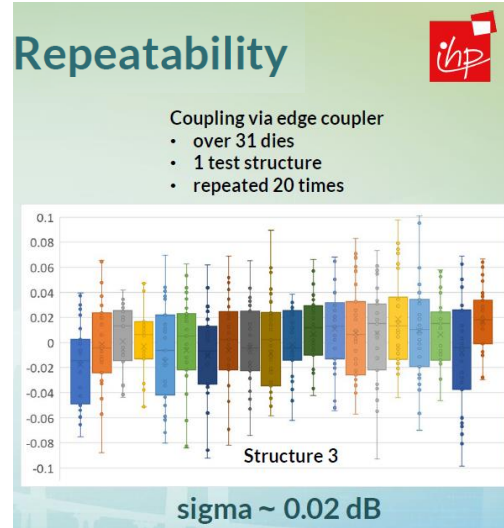
www.formfactor.com/sales-service/contact-sales/

<https://www.formfactor.com/download/fully-automated-integrated-silicon-photonic-wafer-test/?wpdmdl=82376>

Marker structure for alignment

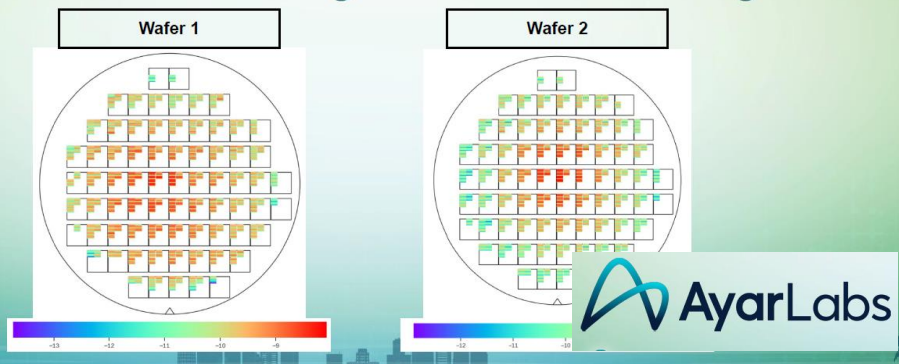


In production NOW!



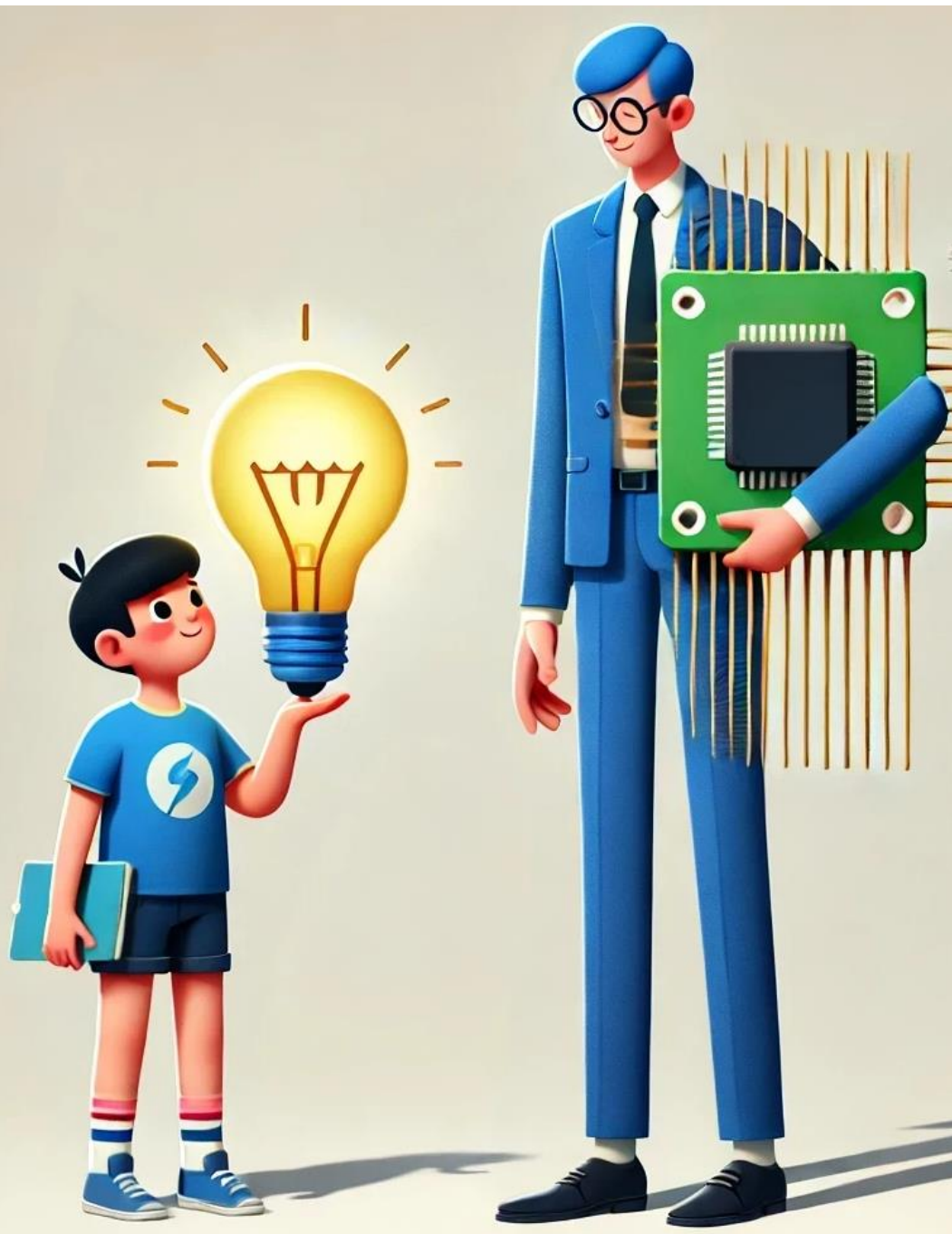
Application of FFI Pharos Technology

- Ayar Labs has performed full wafer measurements on dozens of wafers
- Insertion loss metric is being used as KGD screening criteria



How to get in contact?

- Product configurator: www.keystone-photonics.com
- Custom products: sales@keystone-photonics.com
- Contact **wafer-level testing companies**



What we are here for?

=> Enlighten with photonics

<= Learn from micro-electronics