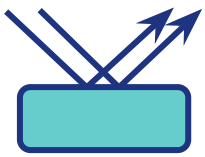
shinephi

Optical Inspection of Advanced Materials

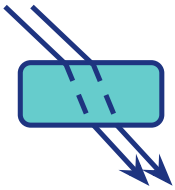
Real-time nano-characterization

Modular metrology **add-on** transforming any optical system into **high-stability** inspection tools for **real-time** process control and quality assurance.

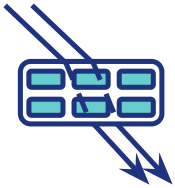
Measure nanoscale topography and local refractive index variations in:



Reflective surfaces



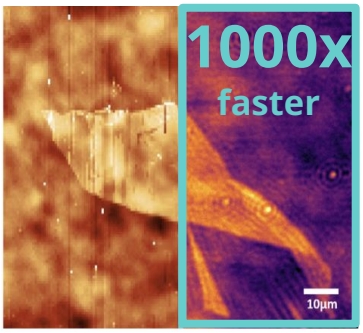
Transparent material



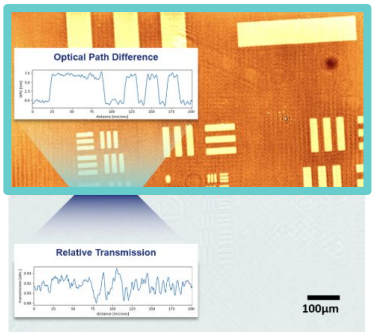
Embedded structures

Boost your inspection tools

- ✓ **High phase sensitivity** down to **λ/1000**
- ✓ **Real time imaging** up to **50 fps**
- ✓ **Non-destructive** keep samples **intact**
- ✓ **High stability** no additional accessories



Atomic force microscopy
2D semiconductor materials



Optical microscopy
Silica nano-structures

make it visible!

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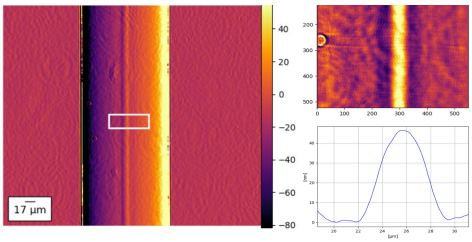
Representative Use Cases

Optical Fibers Profiling

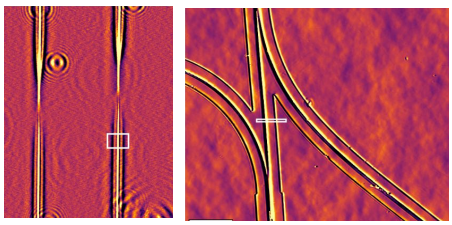
Standard refractive index (RI) profiling requires physical cleaving, **destroying sellable** stock and prevents the final quality verification of finished units.



Map 3D core geometry and RI variations through the cladding while retaining **full sample integrity** while maximizing total production yield.

Photonic Integrated Circuits

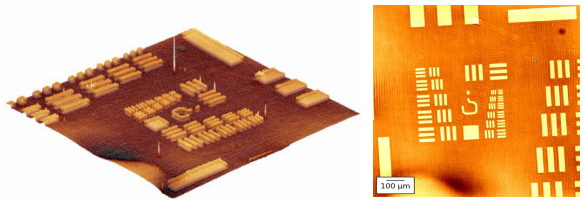
Defects and refractive index deviations identified only post-production result in **unrecoverable scrap** and **wasted production cycles**.



Execute sub-nanometric inspection of waveguide geometry during the writing phase to enable **immediate correction** to prevent batch failure and **maximize operational throughput**.

Nanofabrication

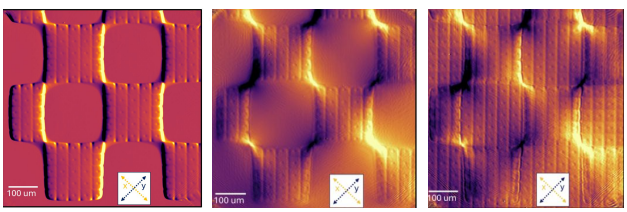
Offline inspection masks defects until after batch completion, resulting in **high scrap rates** and **unrecoverable material waste**.



Perform instantaneous, sub-nanometric 3D profiling of height and refractive index in-situ to validate production quality during the process to **eliminate waste** and **maintain peak operational volume**.

Polymer curing

Undetected resin transformations during irradiation lead to off-spec curing and **unrecoverable batch loss**.



Map refractive index and thickness shifts in-situ to ensure **material spec-compliance**, using instantaneous feedback during exposure to eliminate process drift and **minimize scrap**.

Get in touch!

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