

Technology Offer

CSIC/IG/153

Non-invasive-standards procedure for high-precision optical calibration



Manufacturing procedure for suspended gauges for high-precision and non-invasive optical calibration

Intellectual Property

Priority patent application

Stage of development

TRL4

Intended Collaboration

Licensing and/or co-development

Contact

Dra. Isabel Gavilanes Pérez

Vice-presidency for Innovation and Transfer

 Isabel.gavilanes@csic.es
 comercializacion@csic.es


Market need

In the field of optical microscopy and other imaging techniques at the micrometric scale, precise calibration of optical systems is a fundamental requirement to ensure the metrological validity of results. This need is especially critical in scientific, biomedical, industrial, and forensic applications. Conventional solutions use gauges rigidly attached to the substrate, limiting real-time calibration by preventing direct contact with samples and requiring specific optical preparations, which restricts their usefulness to stages before or after the acquisition process.



Proposed solution

The developed procedure combines different types of patterns within a single structure, enables precise optical calibration under real operating conditions.

It enables the simultaneous evaluation of multiple critical parameters without interfering with the sample or requiring changes to the optical system, making it particularly useful for quality control applications in regulated environments or those requiring metrological traceability, such as digital histology, biobanks, automated screening, or multichannel 3D reconstruction.

Competitive advantages

- Real-time adaptability to sample topography with error detection.
- Supports functional layers like AR coatings, fluorescent tags, or chemical treatments.
- Acts as an internal standard for post-acquisition image validation.