LIGNANOWISE

SEE THE INVISIBLE

Optical Microscopy Beyond the Diffraction Limit

CONTENT

ABOUT US

LIG Nanowise is a UK company that specialises in the application of **microsphere--based super-resolution microscopy technology** to massively amplify the power of scientific instruments in a variety of fields.

In 2017, we launched the world's first super-resolution white light microscope allowing **reaching sub-diffraction limit resolution in full colour**.

Our applications include **material sciences** - semiconductors, nanoparticles and graphene - **mineralogy, and most recently, bioimaging.**

OUR TECHNOLOGY

NANORO-M® is a scanning super-resolution reflective optical microscope, designed and built by LIG Nanowise around the unique optical properties of microspheres to enhance the magnification and resolution of images.

This patented technology, at the heart of NANORO microscopes, is known as SMAL® (Super-resolution Microsphere Amplifying Lens).

The initial version of SMAL® required the sample to be immersed in oil or water. However, with advancements in technology, we achieved the development of the **first non-contact, immersion-free super-resolution lens in white light** without any specific preparation requirements.

In partnership with

Nikon

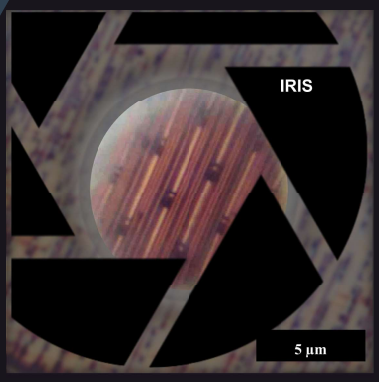
NIKON METROLOGY
VISION BEYOND PRECISION

WHAT WE DO

Super-resolution white light LED modulators

Movable light source with a tuneable aperture. By adjusting the position of the light source and the size of the aperture, the illumination will only be focused on the microsphere attached to the lens to give the best contrast and resolution to the image.

Iris fully open

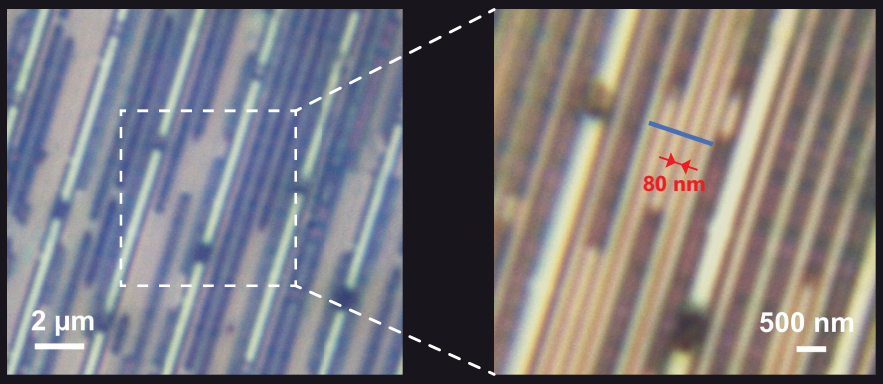


Iris closed at 50%

Iris closed around the microsphere

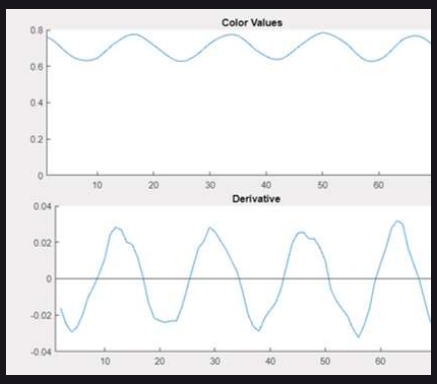
Imaging beyond the diffraction limit with SMAL® lens

With immersion medium



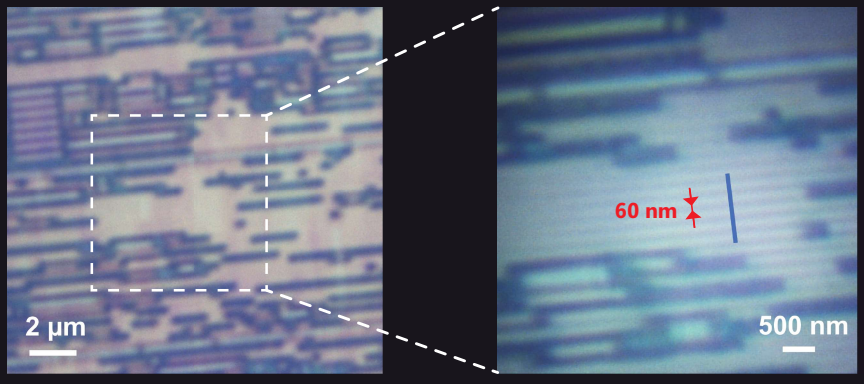
100x oil immersion standard objective lens

SMAL® used with oil immersion



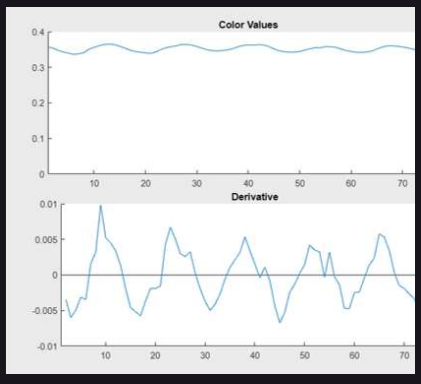
Resolution of 80 nm

With NO immersion medium



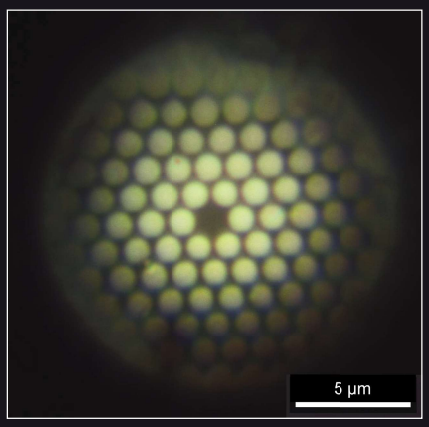
100x oil immersion standard objective lens

AIR SMAL® (no immersion medium)



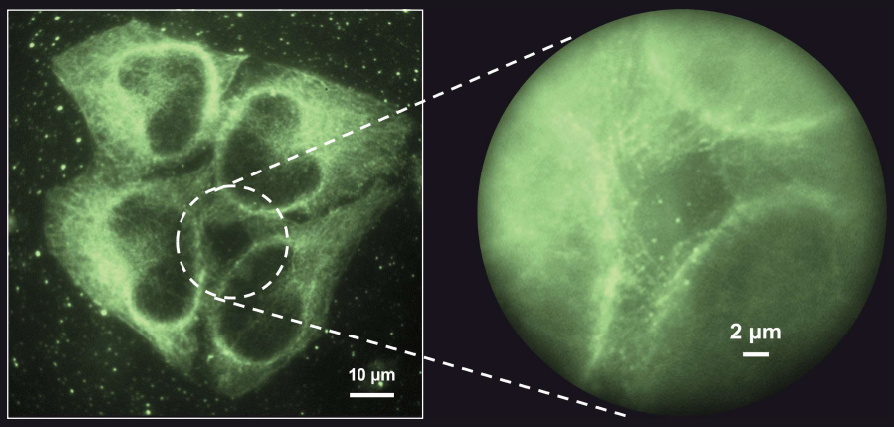
Resolution of 60 nm

Photonic



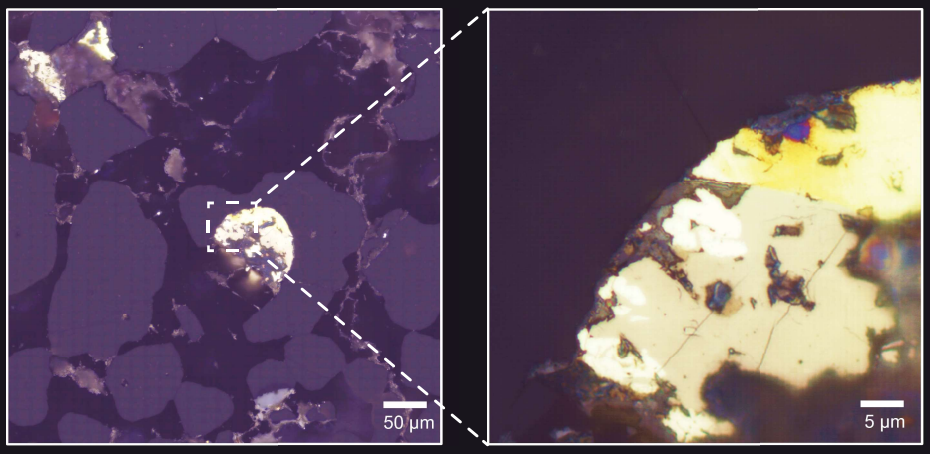
Photonic crystal fibre.

Fluorescence



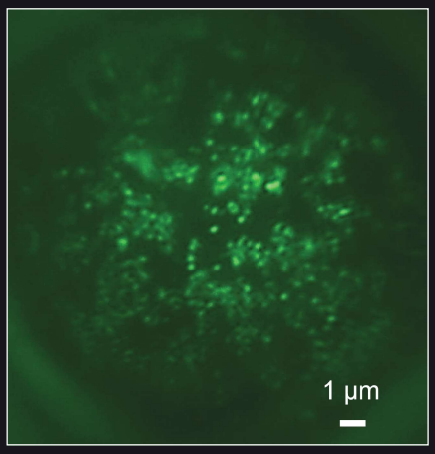
Observation of single microtubule.

Geology



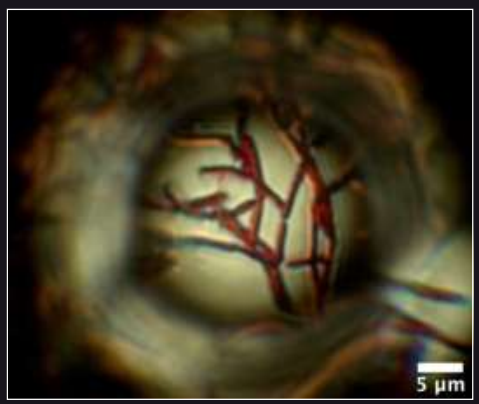
Platinum-group mineral grains in volcanic stone.

Nanoparticles

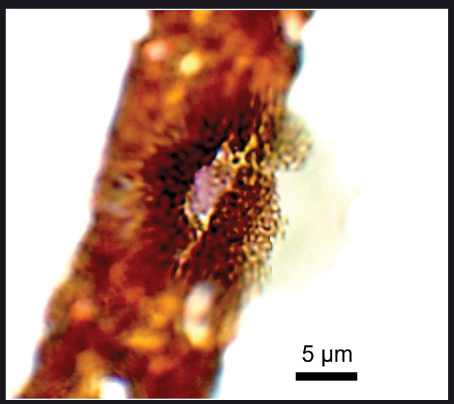


Gold nanoparticles.

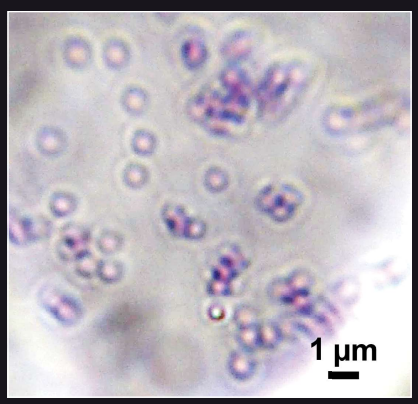
Biology



Bacillus bacteria.

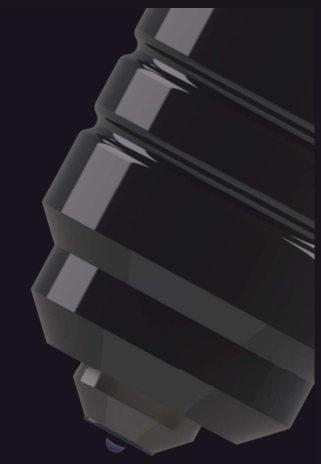


Eye tissue.



Staphylococcus aureus bacteria.

OUR **PRODUCTS**



SMAL® LENSES

SMAL® AIR

NO IMMERSION MEDIUM
15 µm FIELD OF VIEW
200x MAGNIFICATION
80 nm RESOLUTION
NON-DESTRUCTIVE

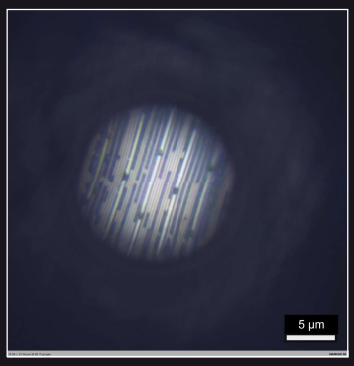
SMAL® IMMERSION

OIL/WATER IMMERSION MEDIUM
15/30 µm FIELD OF VIEW
200x MAGNIFICATION
80 nm RESOLUTION
MULTISPHERE ARRAY 7 spheres placed in honey comb pattern

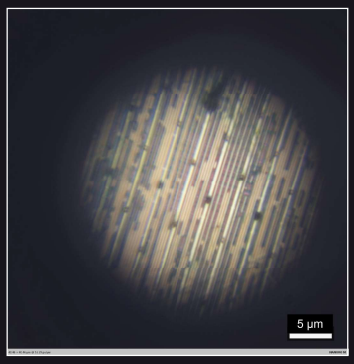
IRIS INTEGRATED SMAL®

The ultimate and unique tool for optical microscopy

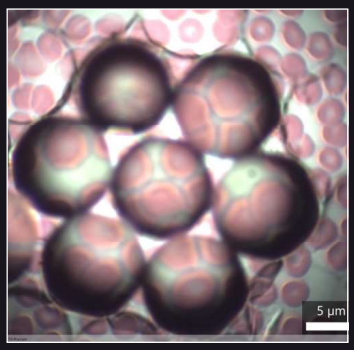
Different microsphere for different properties and applications



Higher magnification



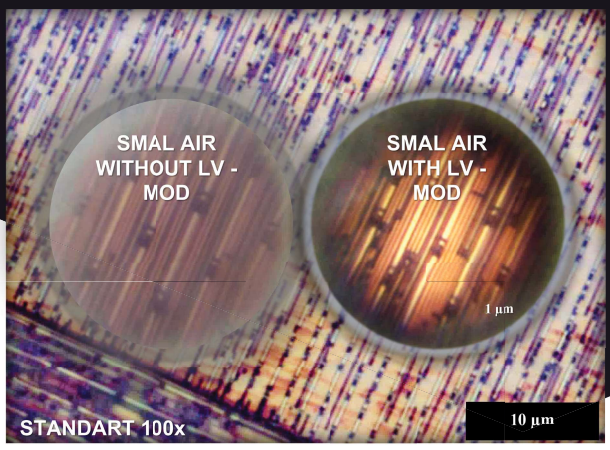
Larger field of view
Longer working distance

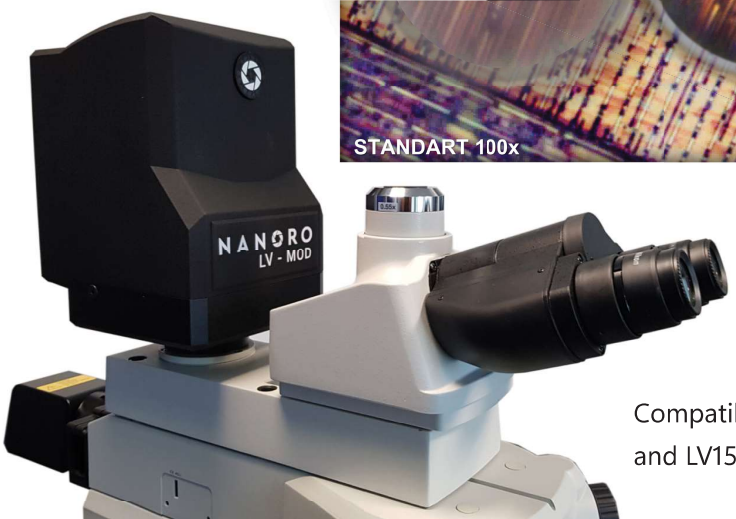


Multisphere array integrated SMAL®

LV-MOD®

External illumination module developed in partnership with Nikon Metrology. Combining the SMAL® lenses, the LV-MOD® provides the perfect illumination required for a full microsphere imaging experience by allowing the adjustment of the position and the apperture size of the light.

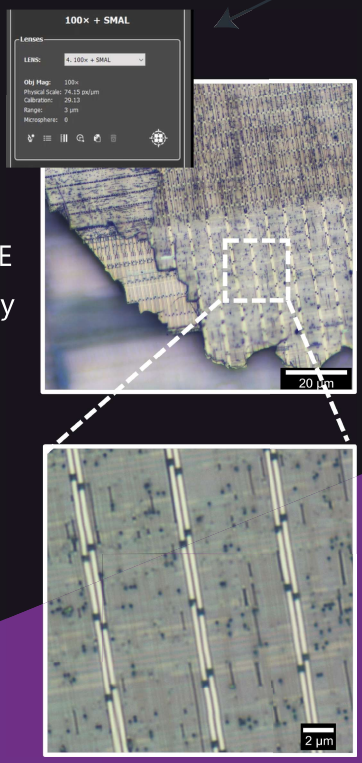


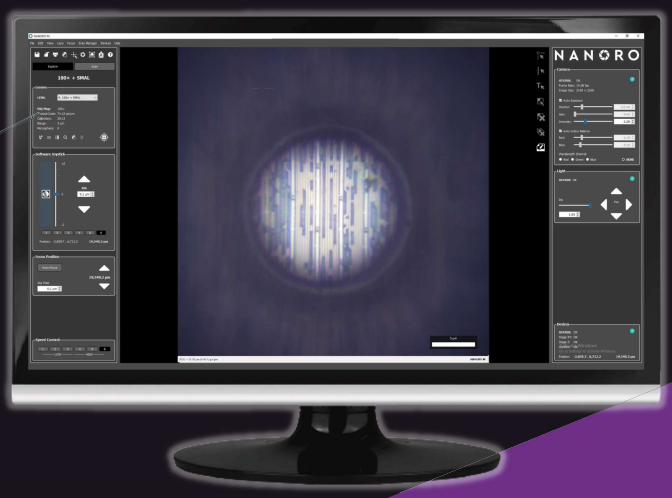


Compatible with Nikon LV100 and LV150 microscopes

NANORO-M®

The particularity of NANORO-M® is based on its **microsphere illumination system**. Equipped with a white LED source, the microsphere illumination is driven via Software developed specifically to adjust the position and the size of the illumination allowing the best condition for the use of microsphere for super-resolution microscopy.





NANORO-M® Software developed specifically for microsphere microscopy imaging

Up to 4 cm x 4 cm SCAN RANGE
Up to 32k x 32k image capability
Time Lapse video recording
Z and Focus stacking
Adjustable lamp (position, brightness, iris)
Adjustable camera (shutter, gain, intensity, colour balance)
Auto Focus

Large scan of super-resolution using unique light modulator technology for super-resolution

NANORO-B

BIOIMAGING microscope
TRANSMISSION & REFLECTION modes
FLUORESCENCE

SUPER-RESOLUTION WHITE LIGHT MICROSCOPY

Redefine the Limits of Optical Microscopy

Contact us for more information!

FIND US AT

Unit 15 Williams House
Manchester Science Park
M15 6SE
United Kingdom

(+44) 161 342 0515

EMAIL US

enquiry@lig-nanowise.com

www.lig-nanowise.com

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