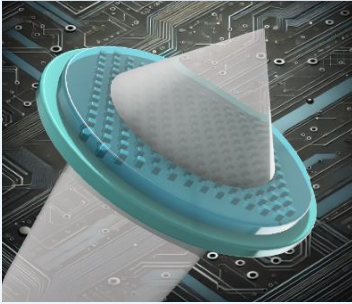


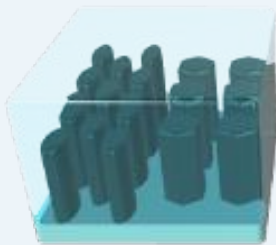
ULTRA HIGH AND LOW REFRACTIVE INDEX MATERIALS FOR META-LENSES



A meta-lens is a flat lens composed of nanostructured meta-atoms that manipulate light at subwavelength scales to achieve focusing and imaging functionalities. Unlike traditional lenses, meta-lenses can control phase, amplitude, and polarization without requiring bulky optics. They enable compact, high-performance optical systems for applications in imaging, sensing, and augmented reality.

Conventional materials

Meta-atoms height
1200 nm

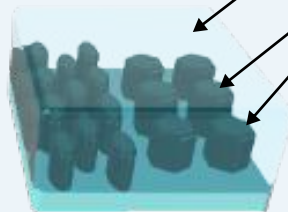


Meta-atoms **RI : 2.3**
Encapsulant **RI : 1.5**

Solnil's materials

EASIER PROCESS

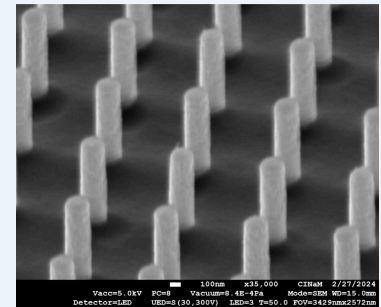
Meta-atoms height
600 nm



Meta-atoms **RI : 2.55**
Encapsulant **RI : 1.12**

Encapsulant (Low RI)

Meta-atoms (High RI)



HIRI-COAT resins are developed to prepare meta-atoms with ultra-high refractive index that can be encapsulated within a resin with ultra-low refractive index (AIR-COAT). This extreme optical contrast enables reducing the height of the meta-atoms by a factor 2 to achieve the same optical performances with much less processing effort.

Materials elaborated by SOLNIL have qualified features:

- **THERMAL CHOCK:** 100 cycles -30°C / 60°C
- **HUMIDITY:** 72h at high temperature (85°C) and high humidity (85%)
- **UV:** 1h 306 W/cm² @ 365 nm
- **ADHESION:** tape peeling and dicing resistance