

# **Theme : Ultra-thin and High-resolution AR Glasses**

## **- Sub Theme : Meta-surface for Ultra-thin & Wide FoV AR Glasses Lens Optics**

Waveguide display is one of the most promising candidate to realize glasses-like AR device since the form factor of the whole display system can be significantly reduced. Recently, diffractive optical elements (DOEs) and holographic optical elements (HOEs) are widely applied to in/out couplers of waveguides. However, DOEs and HOEs have their limitations that high optical efficiency and wide field of view (FoV) cannot be obtained at the same time, which are key factors for immersive user experience.

We are aiming to find new solutions for the AR glasses by applying meta-surfaces to the waveguide display. Meta-surfaces are artificially engineered optically thin films that can overcome the limit of conventional optical elements. Through innovative ideas with meta-surfaces and nano-photonics, we would like to explore if there is any possibility to overcome the limitation of present AR glasses.

- New concept of the waveguide display using meta-surfaces that has wide FoV, high brightness, and high image resolution with ultra-thin form factor.
- Identifying imaging issues for the meta-surface waveguide display such as optical aberrations and the color uniformity.
- Search for reproducible fabrication process for meta-surfaces.

※ The topics are not limited to the above examples and the participants are encouraged to propose original idea.

※ Funding : Up to USD \$200,000 per year