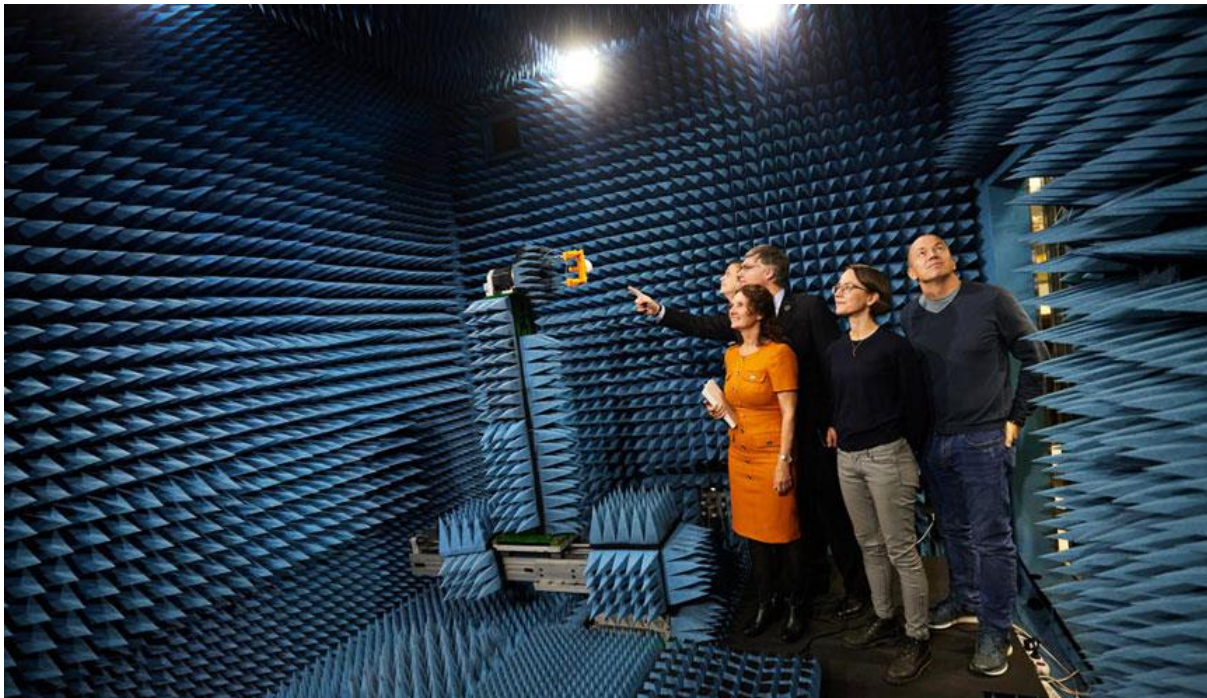




Antenna Laboratory

- ❑ Part of the Sustainable Power Lab (SPL).
- ❑ Anechoic chamber with spherical near-field scanner from 2 to 70 GHz.
- ❑ Signal generators, Spectrum analyzers, VNA,... up to 110 GHz.



In collaboration with:





Research expertise

□ Aperture antennas:

❖ Leaky-wave antennas.

❖ Lens antennas:

- Combination of radomes with arrays.
- Geodesic lenses.

□ Integrated passive components:

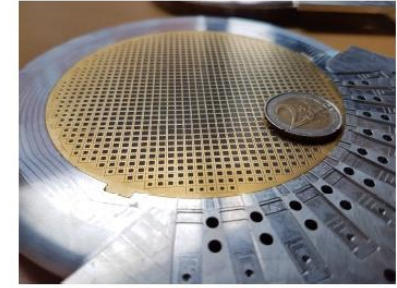
❖ Glide-symmetric periodic structures applied to:

- Low-loss and cost-effective transitions.
- Filtering structures.

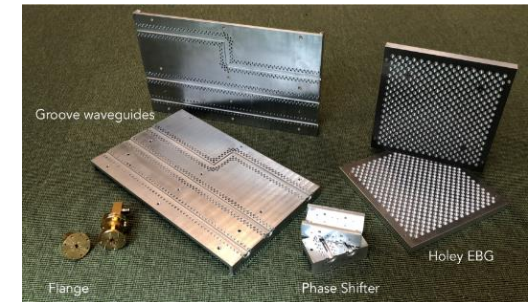
□ Analytical and computational analyses:

- ❖ Multimodal analysis.
- ❖ Ray-tracing for lenses.
- ❖ Circuit models.
- ❖ Mode-matching technique.

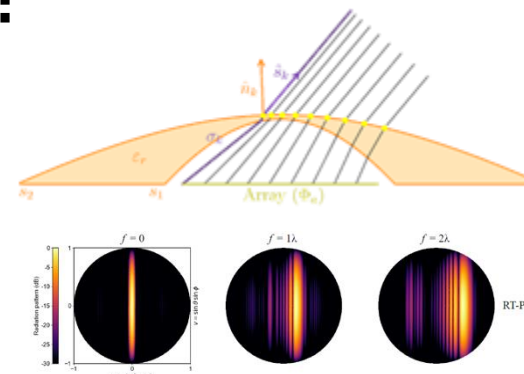
Luneburg lenses for 5G/6G and Satellite communications



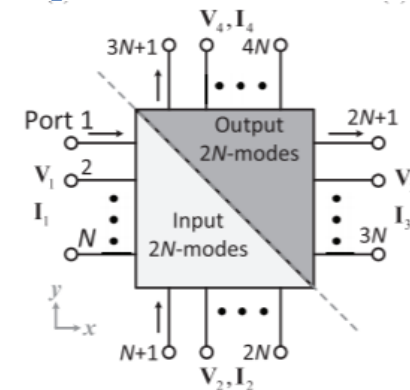
Microwave circuits for mm-wave communication systems



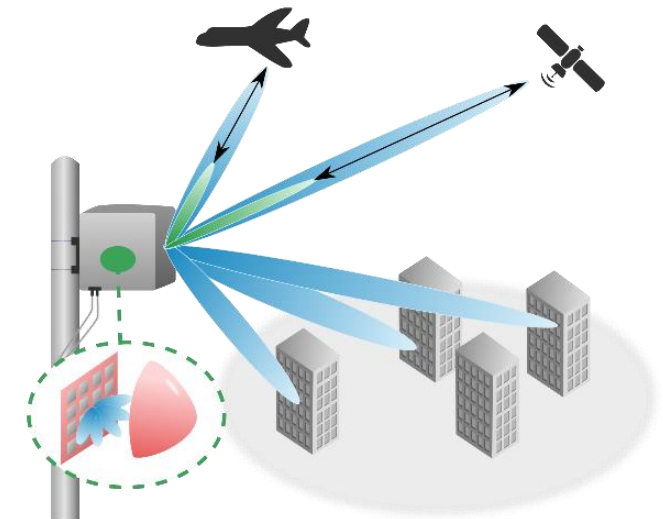
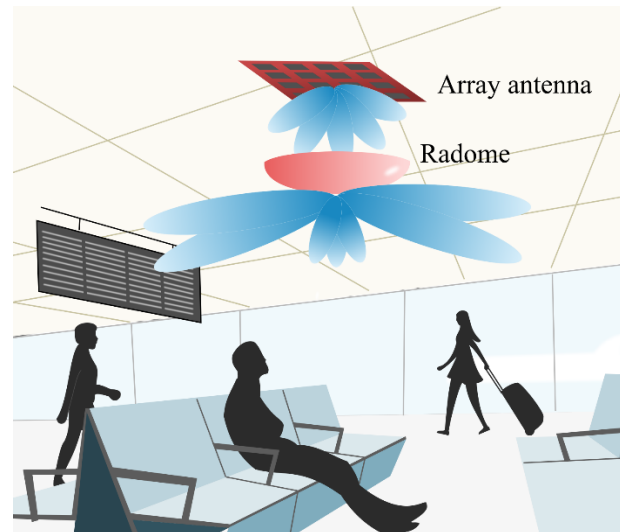
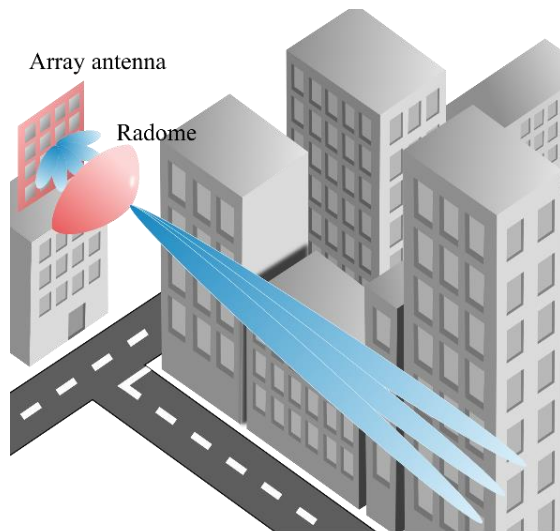
Ray-tracing for dome/lens arrays



Multi-modal analysis for periodic structures



- ❑ One antenna, but multiple domes depending on the use case:
 - ❖ Outdoors in cities – Focusing the radiation in one long street only
 - ❖ Indoor communications – Directive radiation in azimuthal directions only
 - ❖ Unwanted emission suppression, for example, from airplanes and satellites



A. Algaba-Brazalez, P. Castillo-Tapia, M. C. Viganó, O. Quevedo-Teruel,

["Lenses Combined with Array Antennas for the Next Generation of Terrestrial and Satellite Communication Systems"](#), *IEEE Commun. Mag.*.