

ARO-MURI: Tunable and Reconfigurable Optical Negative-Index Materials (NIMs) with Low Losses

<http://cobweb.ecn.purdue.edu/~shalaev/MURI/>

Objective:

- Establish the fundamentals for integrating light with NIMs ➤
- Develop tunable and reconfigurable optical NIM (ONIM)-based devices with low or no loss and electro-optical or nonlinear-optical (NLO) control

Approach:

- Use active & tunable MM components
- MM-based nanolaser & photonics
- Passive low-loss NIMs based on photonic crystals & hyperbolic MMs

Technical Success:

- NIMs in visible
- Demonstration of tunable MMs
- Demonstration of optical cloak
- Demonstration of 3D ONIMs
- NLO in metamaterials (MMs)
- Design for planar hyperlens
- World's smallest laser

