Electromagnetic Waves - Propagation and Scattering

Nano photonics and plasmonics

Non-reciprocity and novel symmetry-breaking effects

Photonic crystals and other periodic structures

Effective Properties of Complex (multi-Scale) Media
Non-reciprocity and one-way in nano-plasmonics

- Interlay of two-type rotation:
  - Electromagnetic (e.g. Faraday rotation)
  - Geometric (e.g. chirality)
- Leading to enhanced non-reciprocity and one-way guiding

- Electromagnetic Waves - Propagation and Scattering
- Effective Properties of Complex (multi-Scale) Media
- Photonic Crystals
  - Structural Disorder
  - Optical and Microwave Devices
- Antennas Miniaturization and Isolation
Photonic Crystal Devices

- Narrow-Band optical filters and routers
- Ultra-compact high resolution sensors - use of resonating structures
  - Displacement sensors
    - Nanometer-scale sensitivity
    - Small footprint - few microns
  - Rotation sensors
    - Sagnac effect in Crystals
    - Ultra-Compact optical Gyroscope
    - High sensitivity