

Ben Zion Steinberg

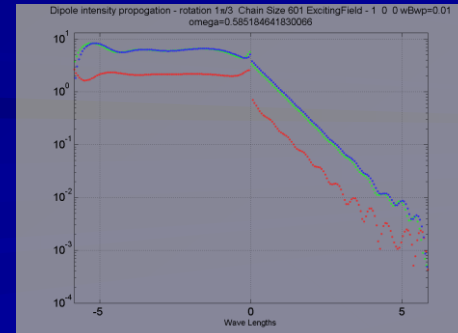
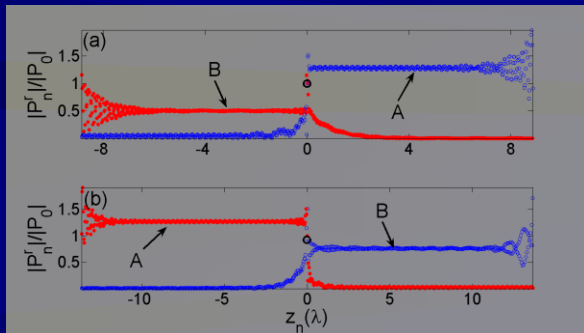
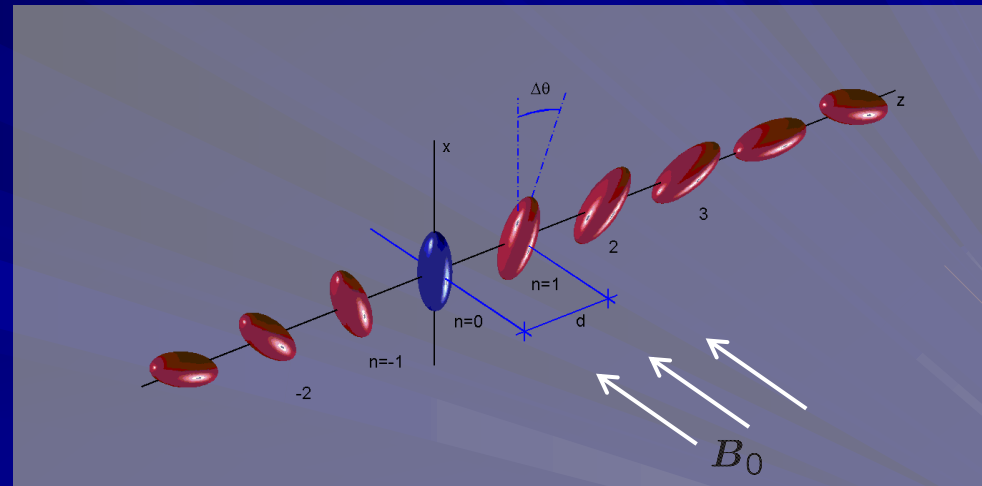
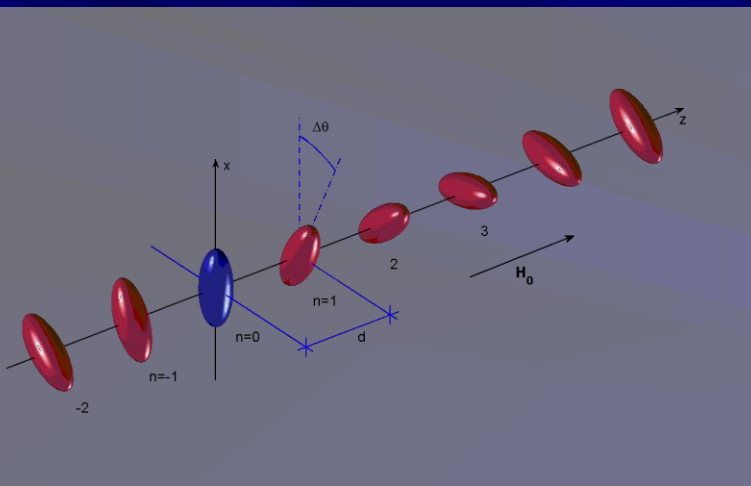
- ❖ Electromagnetic Waves - Propagation and Scattering
- ❖ Nano photonics and plasmonics
- ❖ Non-reciprocity and novel symmetry-breaking effects
- ❖ Photonic crystals and other periodic structures
- ❖ Effective Properties of Complex (multi-Scale) Media

Non-reciprocity and one-way in nano-plasmonics

[1] Hadad , Steinberg, *PRL* 105 233904 (2010)

[2] Mazor , Steinberg, *PRB* 86 045120 (2012)

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



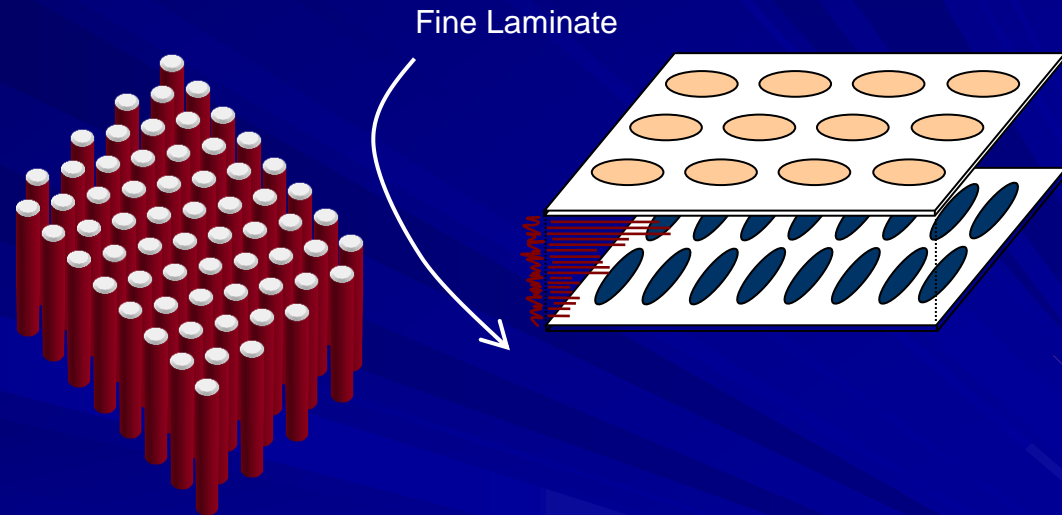
❖ Electromagnetic Waves - Propagation and Scattering

❖ Effective Properties of Complex (multi-Scale) Media

❖ Photonic Crystals

➤ Structural Disorder

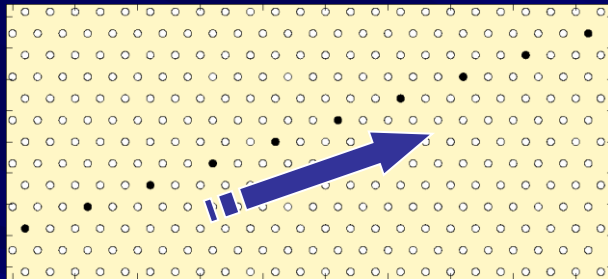
➤ Optical and Microwave Devices



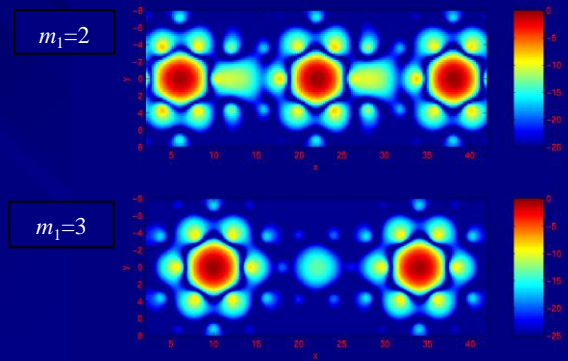
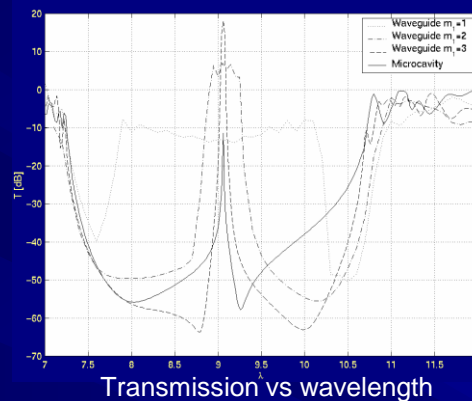
❖ Antennas Miniaturization and Isolation

Photonic Crystal Devices

❖ Narrow-Band optical filters and routers



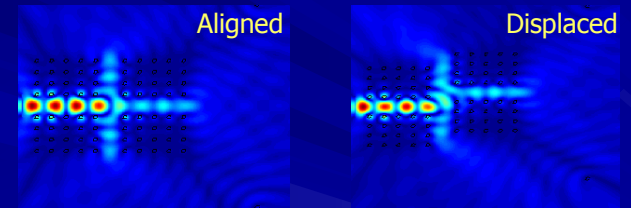
Light flow



❖ 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

