Photonic Materials and Characterization

**Research Topics**

- **Photorefractive materials**
  - Photosensitization with nanocrystals to enhance the spectral response
  - Enhancement of response time for real-time applications
- **Holographic Characterizations**
  - Degenerate four-wave mixing
  - Two-beam coupling
  - Response time
- **Nanomaterials**
  - Synthesis and characterization of narrow band-gap semiconductor nanocrystals
  - Exotic geometries such as core/shell, etc.
- **Photoconductive materials**
  - Quantification of quantum efficiency
  - Onsager modeling
  - Time-of-flight mobility characterizations

**PoC**

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**Keywords**

- Photorefractive, Photoconductive, Holography, Nanomaterials

**Significant achievements**

- Liang, Yichen; Moon, Jong-Sik; Mu, Ruipu; Winiarz, Jeffrey G.; “Functionalization of CdSe semiconductor nanocrystals with organic charge-transporting ligands” Journal of Materials Chemistry C: Materials for Optical and Electronic Devices 2015, 3, 4134-4140.