

Attachment 1 – Research Topic Template

1. **Research Title:** Organic materials for nonlinear optics and photonic applications
2. **Individual Sponsor:**

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3. **Academic Area/Field and Education Level**

Chemistry, Chemical Engineering, Polymer Science and Engineering, Materials Science(BA/BS, MS or Ph.D. level)

4. **Objectives:** Fabrication and characterization of materials for photonics and nonlinear optics applications
5. **Description:** We are investigating the synthesis, fabrication and characterization of organic materials for nonlinear optics and photonics applications. The systems we are studying include chromophores, nanoparticles, quantum dots and related systems. We investigate the fabrication and physical properties of polymer composites, sol-gel glasses, metalens systems and molecular glasses containing these materials. We also perform investigation of excited state behavior, including flash photolysis, ultrafast transient absorption spectroscopy and emission spectroscopy. Researchers with experience in chemistry, chemical engineering and polymer engineering are encouraged to apply.
6. **Research Classification/Restrictions:** This research is unclassified with the goal of publication in the open literature, however the general research area is Distribution D