

RX3

AFRL RESEARCH TOPIC CALL FOR FY13

ATTACHMENT 1

1. **Research Title:** "Color Changing, Variable Transmission Optical Devices on Flexible Substrates."
2. **Individual Sponsor:**

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3. **Academic Area/Field and Education Level:** chemical engineering, chemistry, materials science, physics, electrical engineering, or other related disciplines.
4. **Objectives:** Develop color changing materials and design concepts capable of color and/or transmission change on flexible substrates. Characterize the transmission in the clear state, contrast achieved in colored states, switching time, and power consumption of the material system. Scale optical device into large format (10 cm x 5 cm) with pixilated control of the color change on flexible substrates.
5. **Description:** Generating an optical material system that regulates the extent and composition of transmitted light is highly useful to a variety of USAF applications including variable transmission/color changing visors as well as dynamic optical filters. The proposed project seeks to examine recent advances in color tunable and/or variable transmission material technologies (e-ink, electrochromic, liquid crystal) towards the generation of a system with a clear ground state (in transmission) on flexible substrates.
6. **Research Classification/Restrictions:** *None.*
7. **Eligible Research Institutions:** Place an X in all that apply.

Universities (DAGSI) AFIT (only) USAFA