

EXECUTIVE SUMMARY [NON-CONFIDENTIAL, NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]:

The use of organic materials is producing a revolution in photonics. This project takes lessons from biology by constructing photon harvesting structures and applying them to photonic devices.

Applications of new materials range from optical memories to biosensors. We concentrate on the use of organic material in light detectors. We take a close look at the conversion of light to electrical impulses and use this information to develop ultrafast detectors.

This project, while focusing on one aspect of a broad emerging field, will provide answers that will forward the development of this field in general.

Dramatic expansion in the photonics and electronics industries is expected. This expansion will be driven by biophotonic and bioelectronic materials, two of the emergent areas of the broader field of biotechnology. This project is a good introduction to the field of biotechnology to students. The techniques involved in this research will be adapted to classroom experiments as part of a new interdisciplinary curriculum.