**Materials Synthesis and Optical Characterization of Heterointerface Formed By Organic Single Crystal and Two-dimensional Semiconductors**

Modern semiconductor devices such as transistors, lasers, and solar cells rely heavily on heterojunctions or heterostructures from which most exotic and novel properties of materials emerge. Realization of new heterointerfaces with organic single crystals and two-dimensional (2D) materials will provide excellent opportunities for investigating fundamental optical properties in two dissimilar materials coupled with weak van der Waals force. In this REU research program, we will pursue the growth of organic small-molecule single crystal and optical characterization of its heterointerfaces with 2D materials to identify new physics and novel phenomena, which will lead to a new platform for design of novel opto-electronic devices with precisely tailored responses and functionality.

For more information about the research, please visit our website at https://bumsulee75.wixsite.com/quantum-optics-lab.