**Development of New Molecular or 2D Materials Single Photon Sources**

Quantum technologies have exceptional functionalities and capabilities such as next generation quantum computers with speeds overwhelmingly surpassing classical computers; ultra-high resolution imagining; sensors and detectors; and advanced cryptography for secure communication. Single photon sources are primary components for optical quantum information and computation devices, which generally require efficient and deterministic light sources producing indistinguishable and on demand single-photons. In this REU research program, we will pursue the development of new platforms of single photon sources based on the molecular chromophore or 2D materials. With these non-classical systems, we will perform quantum optics to investigate their fundamental quantum features and other optical properties for quantum information science.

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