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Development of a Quantum Optical Setup for Single Photon Experiments[1] JASON TURNER, SEYFOLLAH MALEKI, Union College — Following the work of E. Galvez (Colgate University), we constructed a quantum optical setup to control and detect single photons generated via Type-I spontaneous parametric down conversion using a barium-borate crystal. The photons were detected in coincidence using a Field Programmable Gate Array. The data acquisition and user interfaces to manipulate the photon counts were programmed in LabVIEW. We aligned a beam-splitter into our optical setup to measure the degree of second-order coherence of the Ga-N laser, a quantity used to investigate the existence of the photon. We aligned a Mach-Zhender interferometer into our optical setup to measure single photon interference and to perform the quantum eraser experiment.

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