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Multi-Pixel Detectors for Fiber-coupled and Free-space applications with GHz count rates

In recent years, Superconducting Nanowire Single-Photon Detectors (SNSPDs) have obtained tremendous attention as a possible key technology for photonic quantum processing and faint light detection. Here, we present our recent progress on engineering multi-pixel detectors made of NbTiN SNSPDs for fiber-coupled and free-space applications. We discuss challenges and approaches to improve the most important figures of merit (DCR, dead time, timing jitter, efficiency) and the achieved performance including a maximum count rate in the GHz regime.