Drone to Drone QKD

Abstract:
With the increasing use of drones in various applications, especially in military, commercial, and infrastructure sectors, guaranteeing their authentication and secure communication has become paramount in drone networks to mitigate unauthorized access and malicious attacks. Conventional authentication mechanisms rely on discrete logarithm and integer factorization which is obsolete in the post-quantum era. Hence, it is important to include QKD and PQC for any secret communication in UAV platforms. We have implemented B92 QKD with polarization-encoded photons with pointing acquisition and tracking. We will present our results on secure quantum communication between two drones using PQC and QKD with payload mountable experimental devices. We will present a review on the developments in this direction and discuss the challenges.