

50th IAA SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE  
ACTIVITIES (D5)

Cyber-security threats to space missions and countermeasures to address them (4)

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SPOOQYSATS: CUBESATS TO DEMONSTRATE QUANTUM KEY DISTRIBUTION  
TECHNOLOGIES

**Abstract**

SpoQySats is a programme for establishing the space worthiness of highly-miniaturised, polarisation-entangled, photon pair sources using CubeSat nanosatellites. The sources are being developed iteratively with an early version in orbit already and improved versions soon to be launched. Once fully developed, the photon pair sources can be deployed on more advanced satellites that are equipped with optical links. These can allow for very strong security guarantees on uplink and downlink and can be used to establish a global space-based quantum key distribution network. This would enable highly secure symmetric encryption keys to be shared between optical ground stations all over the planet.