

# Wireless, Aerospace & Satellite Communications

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## Nuclear Command and Control using Quantum Key Distribution for Encrypted Communication

Quantum key distribution (QKD) has the potential to provide nearly impregnable secure transmissions, increased bandwidth, and additional redundancy for nuclear command and control communication (NC3). While QKD is still in its adolescence, the manner in which QKD should be used for NC3 must be charted out before it can be engineered, tested, and implemented for operations. This presentation will describe how QKD works, its pros and cons, and theorize how best a QKD system would be implemented.

### Biography

Major Derek Hall is a graduate of the University Wisconsin Whitewater and commissioned through ROTC as a Communications Officer. Shortly after commissioning, he was selected for undergraduate navigator training and he graduated as an Electronic Warfare Officer. He was assigned to the RC-135 at Offutt AFB, where he deployed 15 times for over 700 days to locations worldwide. During that time, he rose to Evaluator Mission Commander and attained a Master's of Engineering degree from the University Nebraska Lincoln. Currently he is working on his Engineering Doctorate with an emphasis in Nuclear Weapons Effects Policy and Proliferation through Naval Postgraduate School.

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