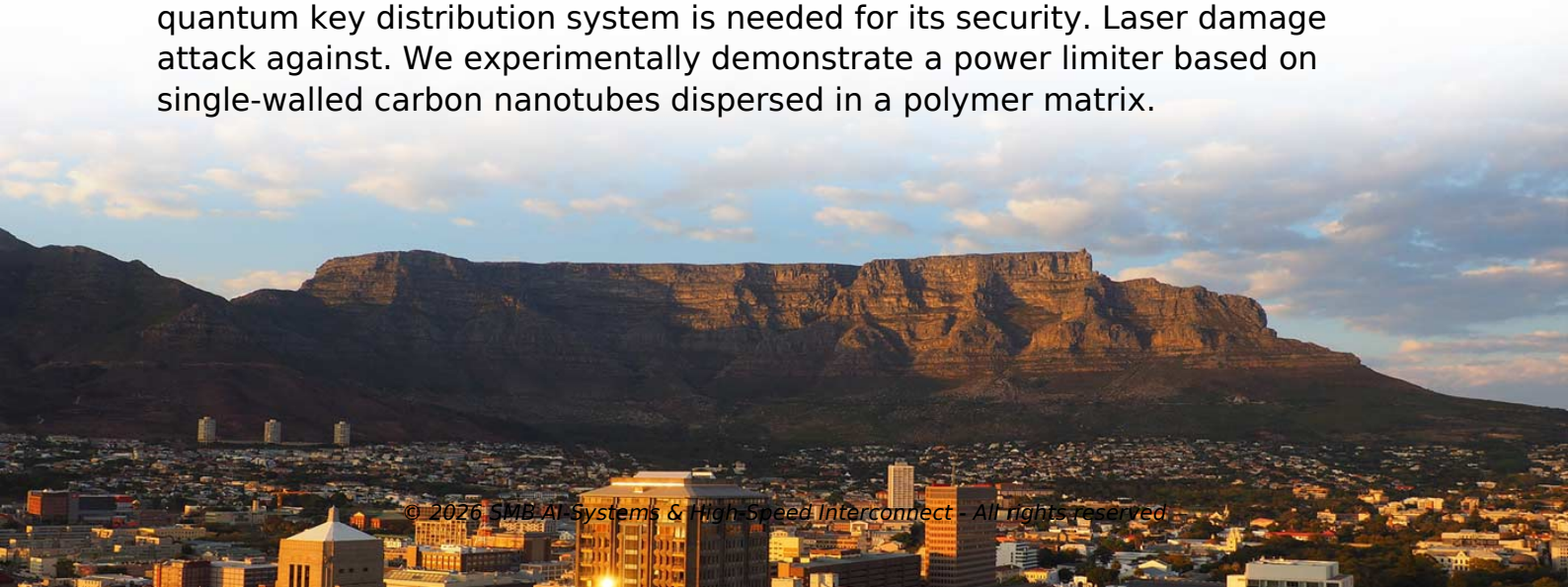
Fiber Optic Injection Attack

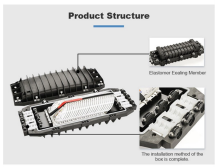
Overview

In this article we describe how fiber optic infrastructure based on PONs may be open to potential denial of service (DoS) attacks via optical signal injections. Security experts warn that this is a growing issue, which could take down entire sectors of PON segments. Unfortunately, the source is vulnerable to light-injection attacks, such as Trojan-horse, laser-seeding, and laser-damage attacks, in which an eavesdropper actively injects bright light to hack the source unit. The hacking laser could be a high-power one that can modify properties of components via. A well-protected and characterised source in a quantum key distribution system is needed for its security. Laser damage attack against. We experimentally demonstrate a power limiter based on single-walled carbon nanotubes dispersed in a polymer matrix.



Fiber Optic Injection Attack

In this paper, we study the effect of a high-power laser on fiber-optic isolators and circulators and propose an effec-tive countermeasure against light-injection attacks on a QKD system.



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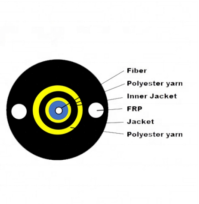
This simple fiber-optic device permanently increases its attenuation when subjected to 50-mW or higher cw illumination at 1550 nm and initiates a fiber-fuse effect at 1 to 5 W. It may be ...

To protect laser injection attacks, we investigate the effectiveness of several possible countermeasures, which includes isolators, circulators and integrated components in the chip.



In these attacks, the power of Eve''s injection laser is limited by the laser-induced damage threshold of the quantum channel. For example, as a quantum channel, the standard single-mode ber is able to ...

To investigate the OPL''s security boundary in quantum cryptography, this work comprehensively test and analyse the behavior of OPL under continuous-wave light-injection attacks and pulse illumination ...

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