Ali, S., Saharudin, S. & Wahiddin, M. R. (2009). Quantum Key Distribution Using Decoy State Protocol. American Journal of Engineering and Applied Sciences, 2(4), 694-698.

Quantum Security Course - *Paper Presentation* - PRELIMINARY

David Araújo (93444)

25th of October 2024

Problem Statement

Real-life QKD experiment rely on **faint lase pulses** which leads easier **multi-photon production** and **channel loss**.

Vulnerable to **eavesdropping** via ***Photon Number Splitting (PNS)*** attacks.

Proposed Approach

Weak decoy and ***vacuum*** states.

Leveraging the ***Decoy State Protocol*** to both **deceive and detect** attackers.

Results & Impact

Implementation via a polarization independent **VOA (variable optical attenuator)** over a 25km telecom fiber.

Improved performance with **higher key generation rate** and **longer distance** transmission.