Study of Covert Channels in Multi-Photon Quantum Communication Protocol

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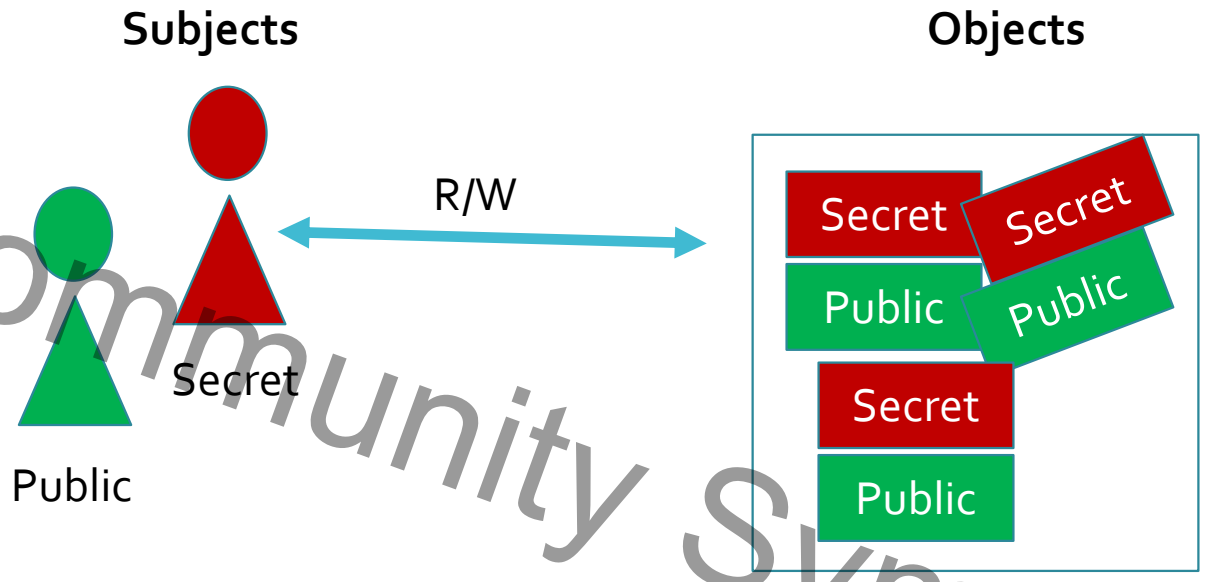
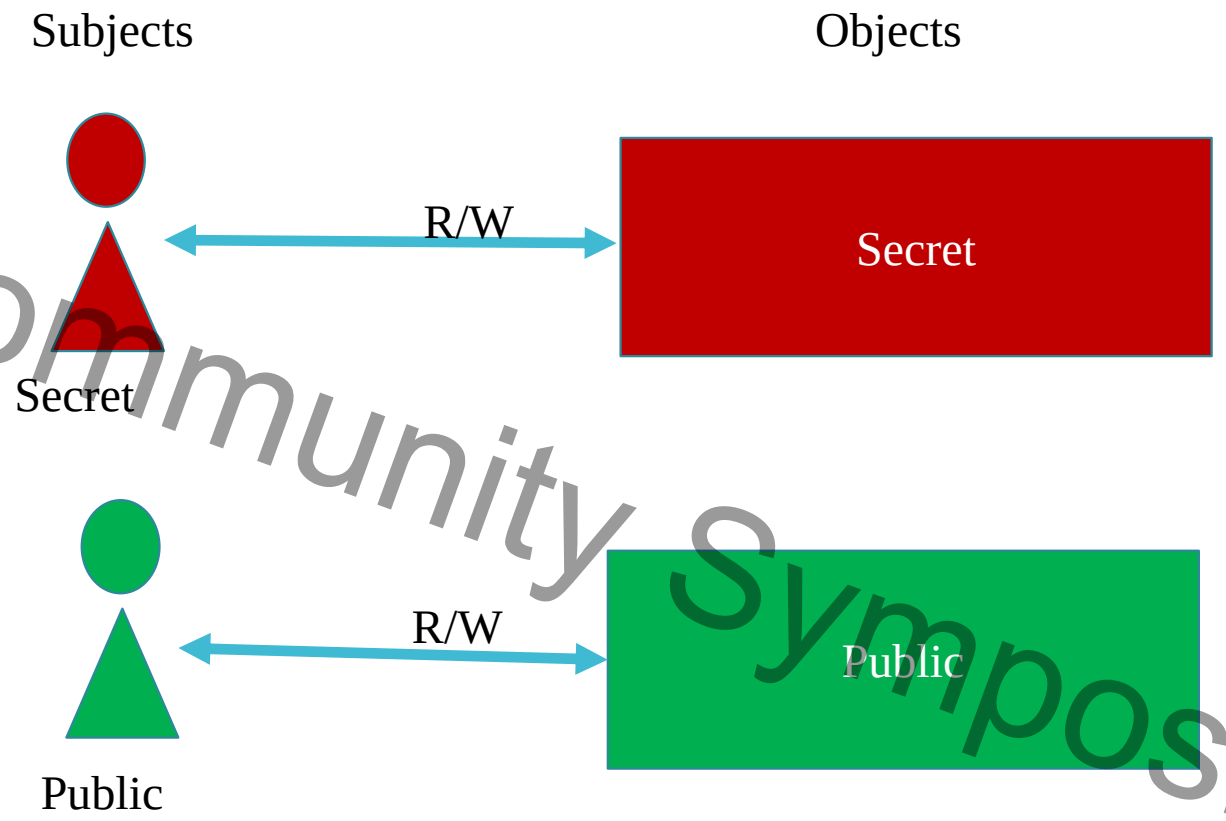
Sensitive Data in Computer Systems



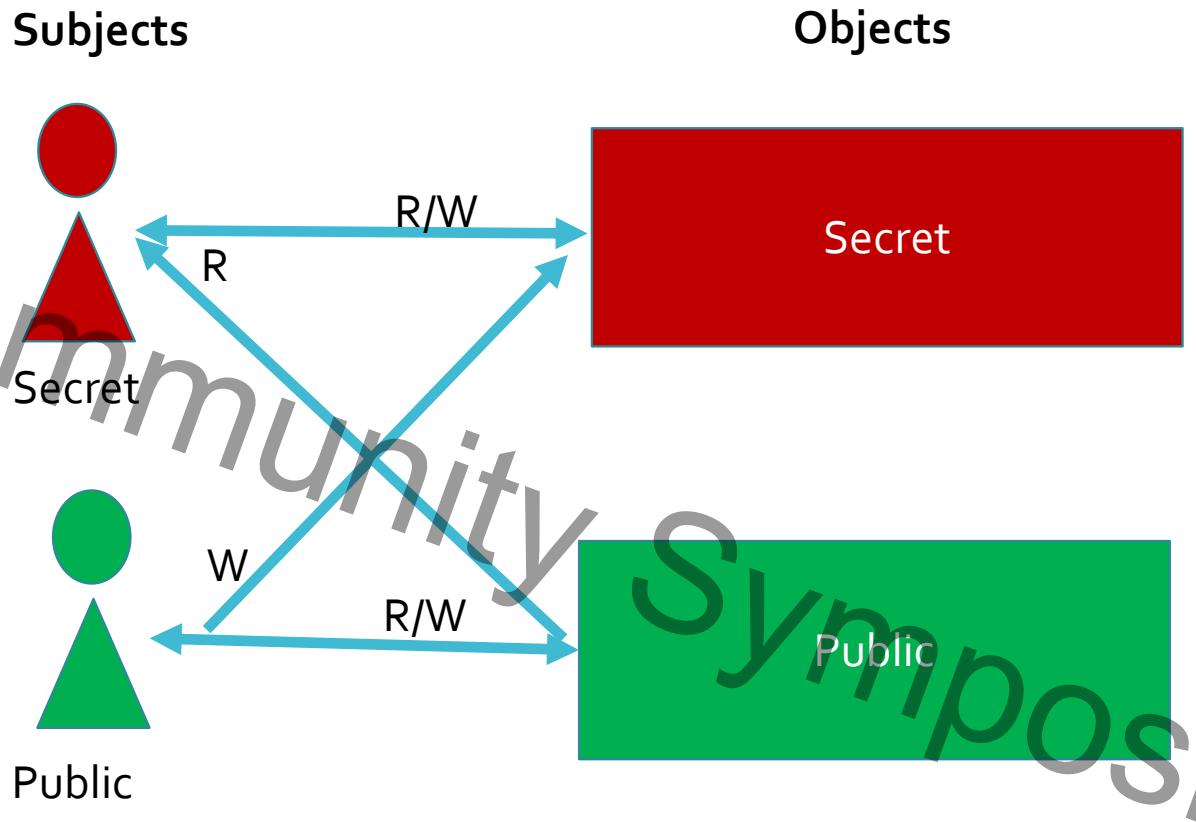
"Secrets get leaked"

Security Objective



"Prevent Public from Accessing Secret"

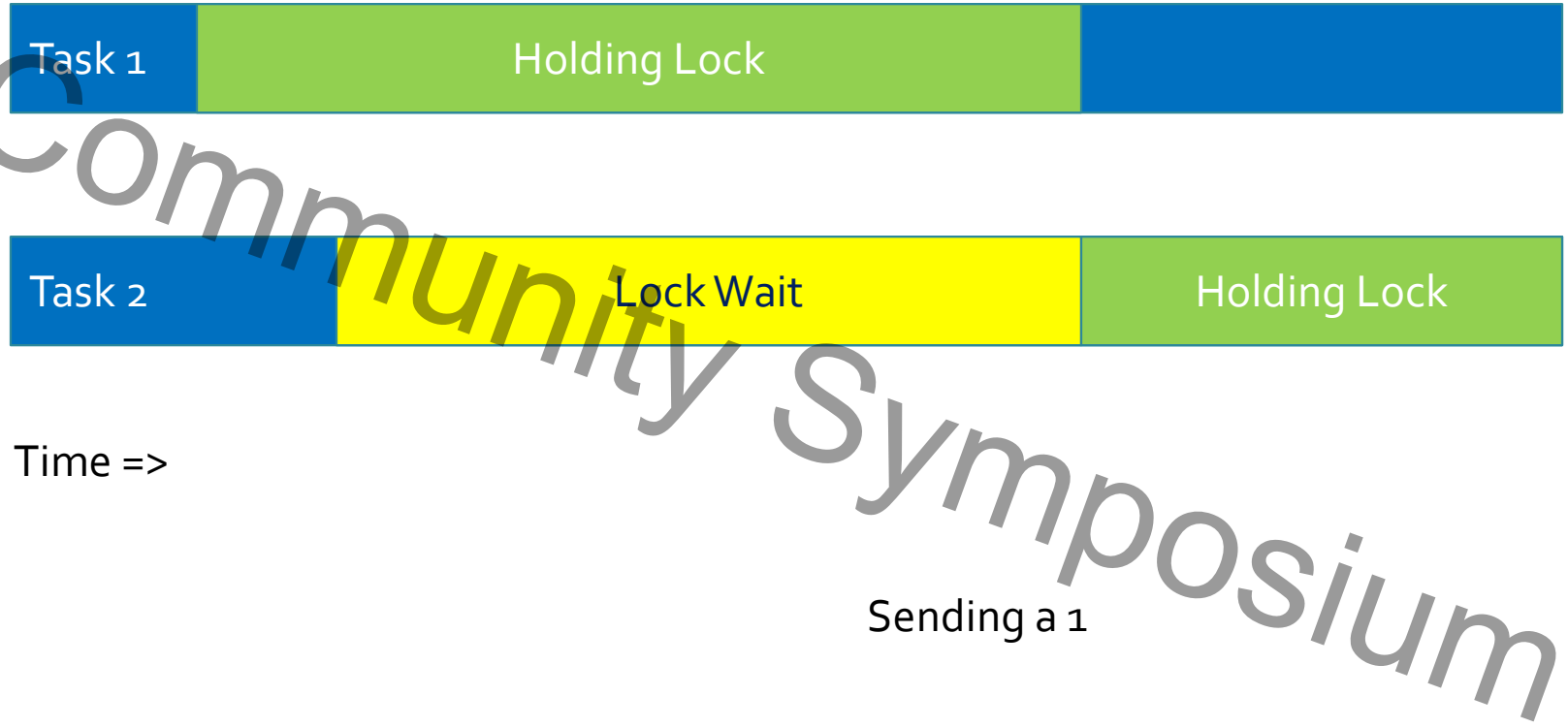
Bell-LaPadula Model



"Read below and write above"

Covert Timing Channels

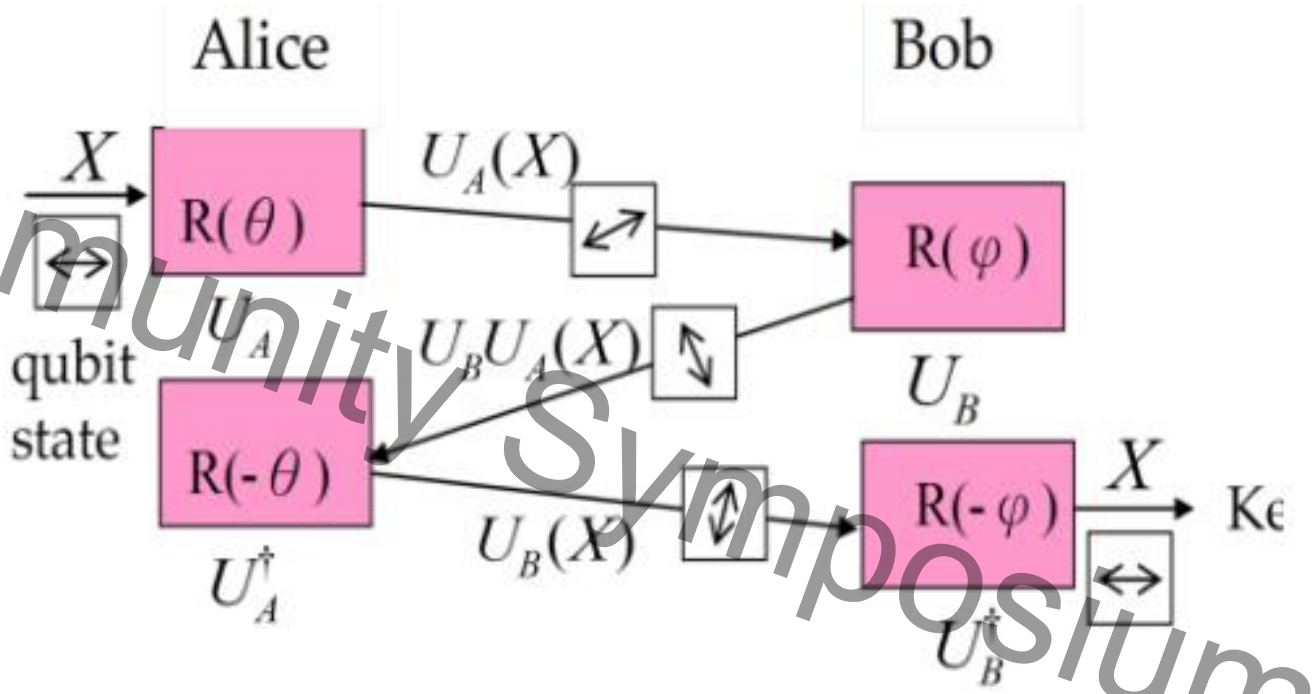
Covert Timing Channels



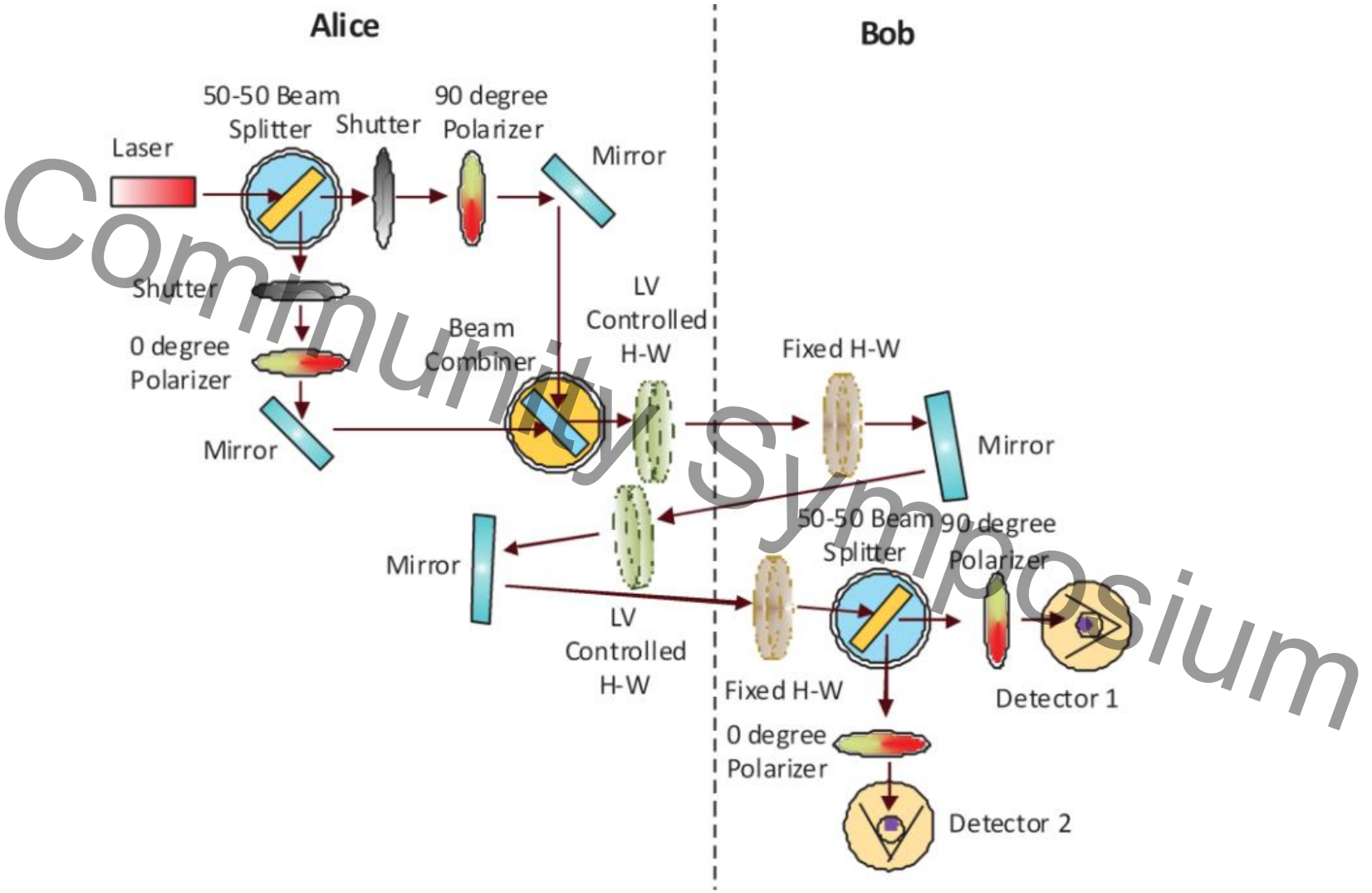
Covert Channel Types

- Timing Channels
- Storage Channels
- History and Prediction Channels

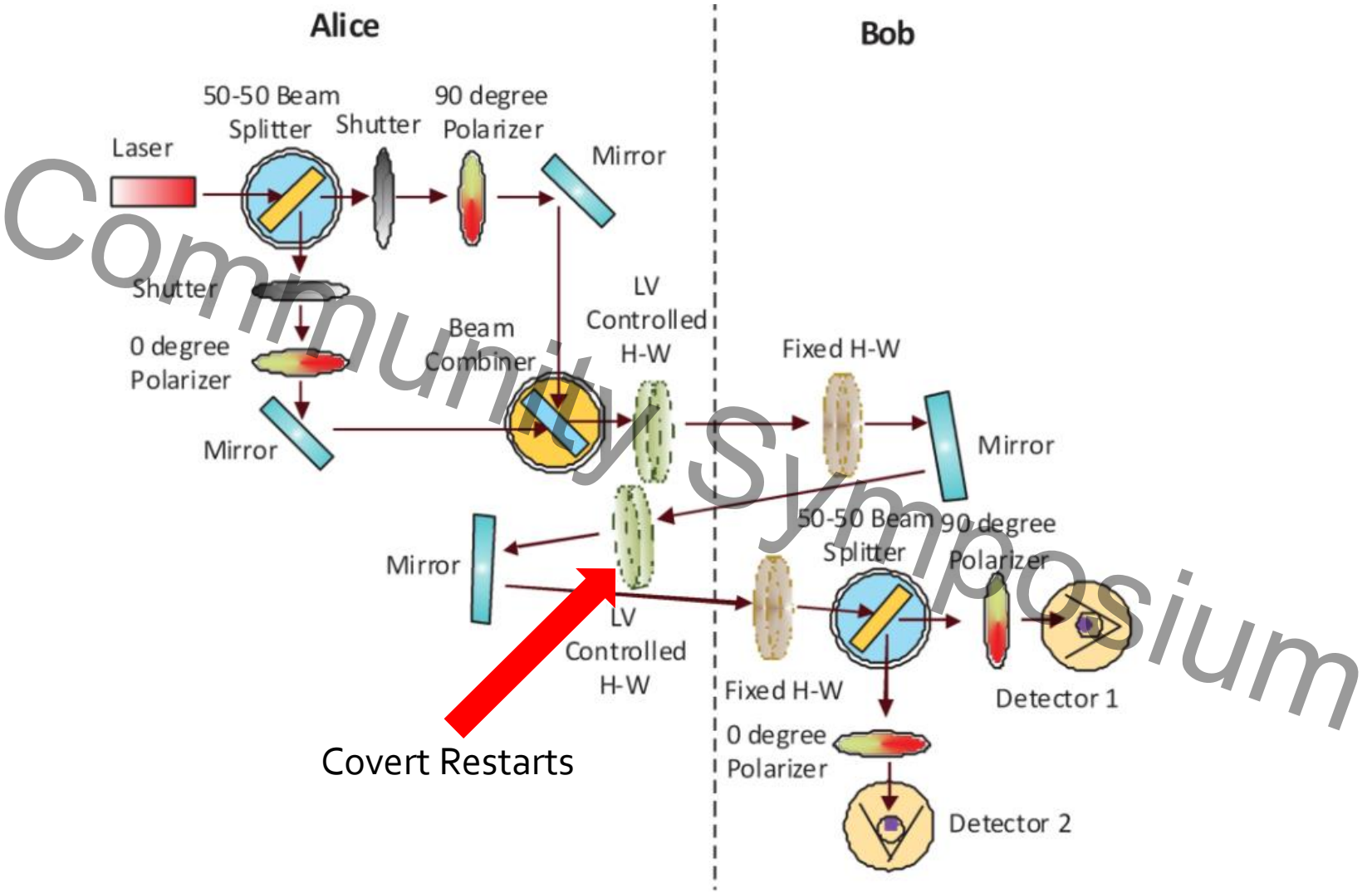
3-Stage Protocol



3-Stage Multi-Photon Experimental Setup



Covert Channel Introduction



Proposed Outcomes

- Discovery of Covert Signaling Methods
- Measurement of Bandwidth
- Counter Measures and Development of Secure Protocols
- Undergraduate Student Participation
- Multi-disciplinary/Multi-Departmental/Multi-University Research

Research Team

- Binto George
- Kishor Kapale
- Sayonmha Mandal
- Nilanjan Sen
- Chunying Zhao

Thank You!