TRI-CROWN Hybrid PQ Encryption Suite

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Abstract

This white paper presents the TRI-CROWN Hybrid PQ Encryption Suite, a comprehensive cryptographic protocol that integrates classical elliptic-curve cryptography with cutting-edge post-quantum algorithms.

Motivation

The rise of quantum computing is reshaping the cryptographic landscape...

Protocol Design

- Classical Component: Ephemeral X25519 Diffie–Hellman for compact, efficient key exchange.

- Post-Quantum Components: ML-KEM-1024 and Classic McEliece 6960119...

Security Properties

1. IND-CCA resilience... 2. Forward secrecy... 3. Downgrade protection...

Conclusion

The TRI-CROWN Suite is a sovereign-grade, future-proof, hybrid cryptographic protocol that invites audit, verification, and deployment.