Geometric Perspective on Quantum Key Distribution

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This work introduces a geometric framework for analyzing the secret key rate in quantum key distribution (QKD). The communication process is modeled as a geometric space, with differential geometry used to describe the behavior of the key rate. In this setting, eavesdropping is interpreted as a disturbance that induces curvature in the "communication" space. This perspective provides an intuitive and compact way to relate geometric properties to QKD performance and security.