Finite Key Analysis for Satellite QKD

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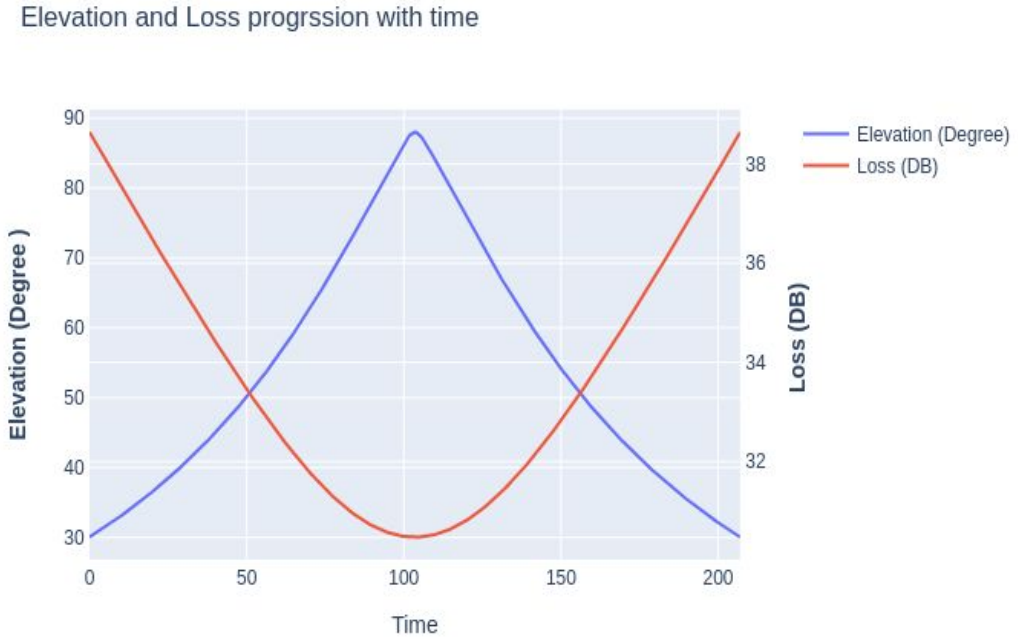
Simulating Satellite QKD with Lab data

We simulate a 200 second satellite pass and estimate all the optical, optomechanical And environmental losses.

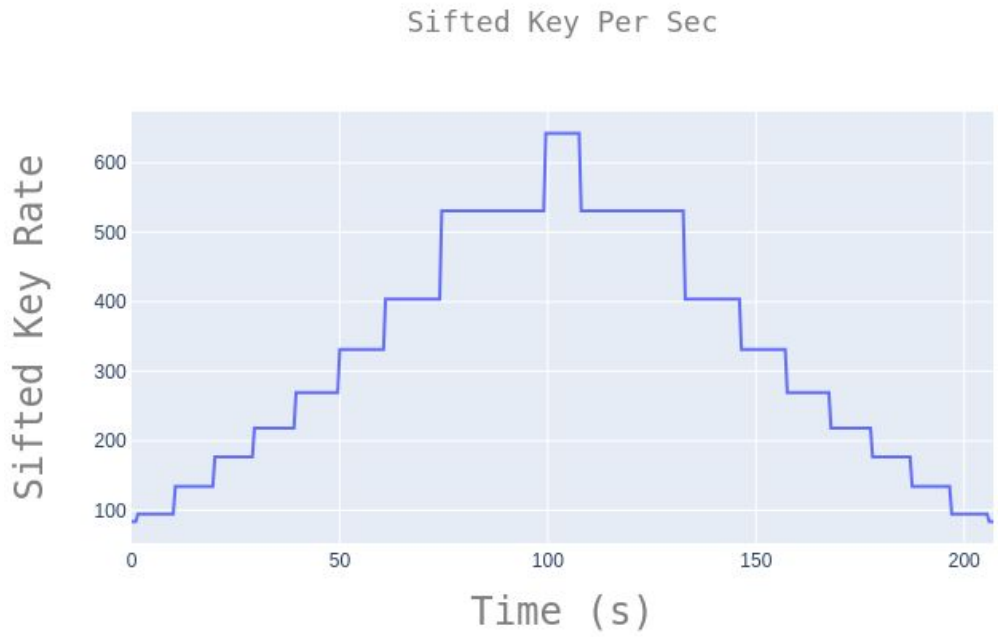


Stitching-up lab data to emulate satellite pass

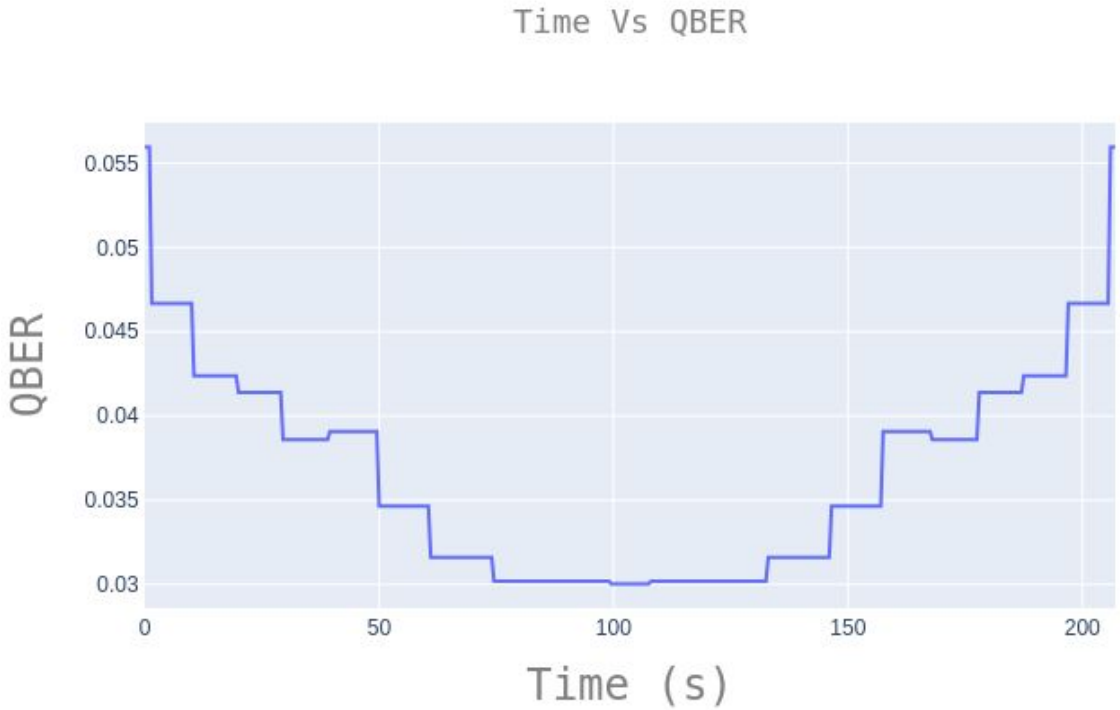
We artificially induce different amount of losses to closely mimic the satellite pass.

Sifted Key Rate

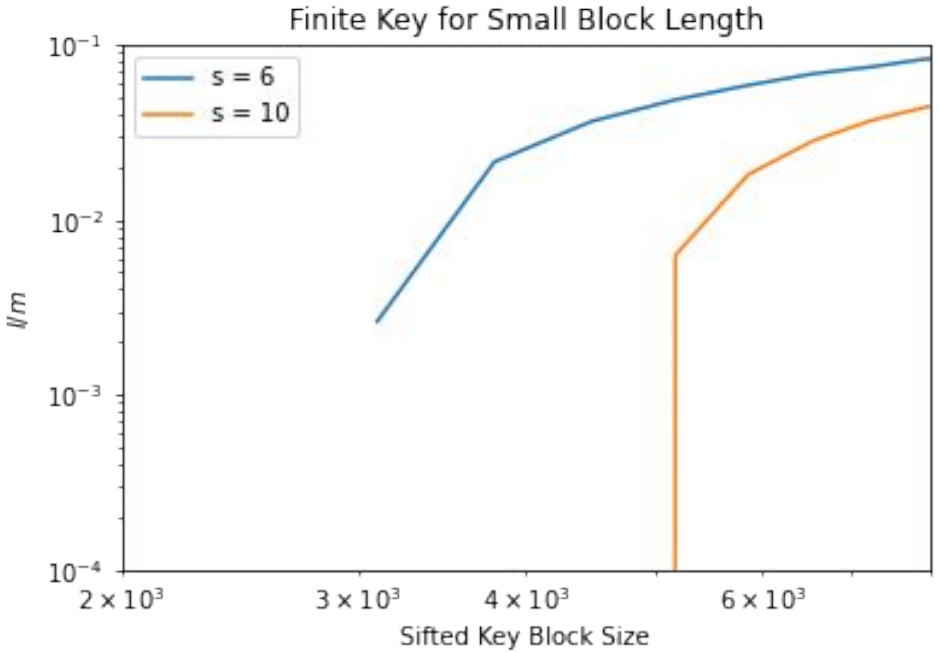
Sifted key rate varies with time

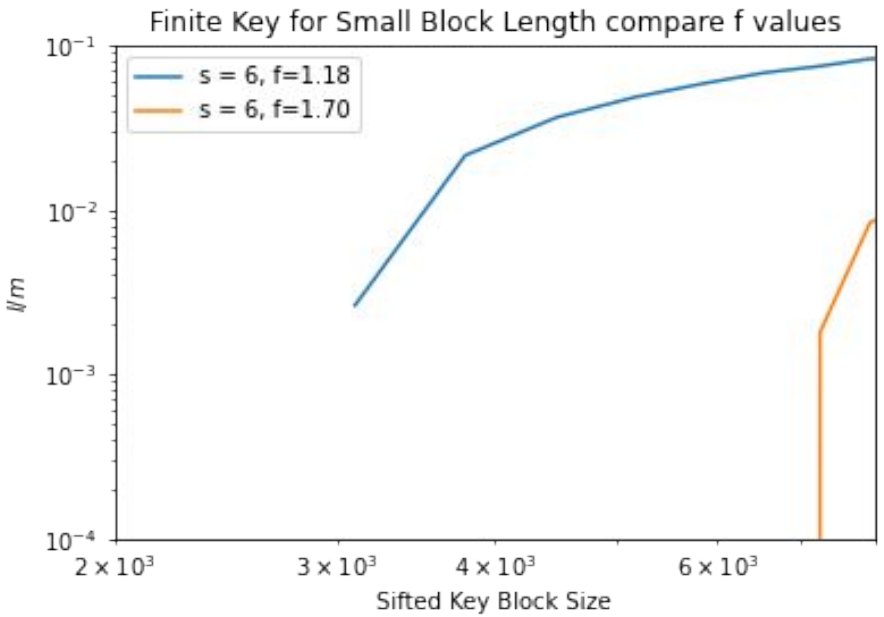


Time varying QBER

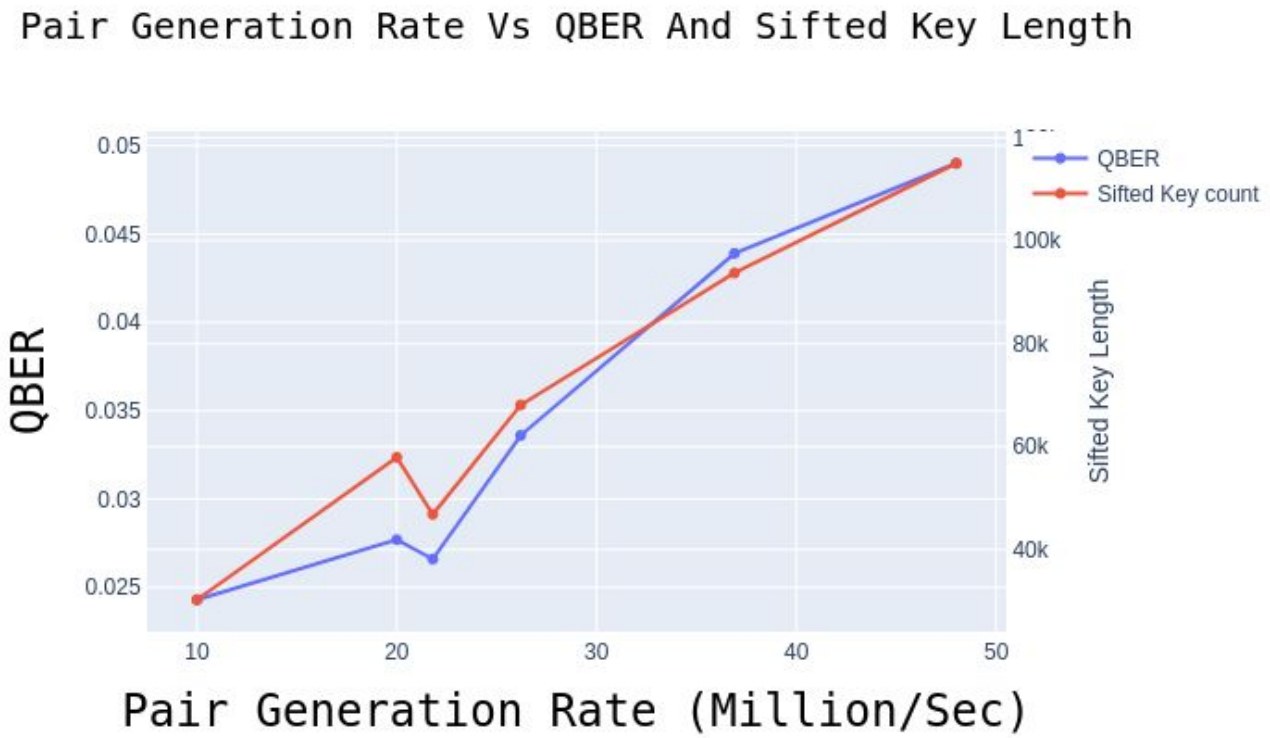


Finite Key extraction using new results

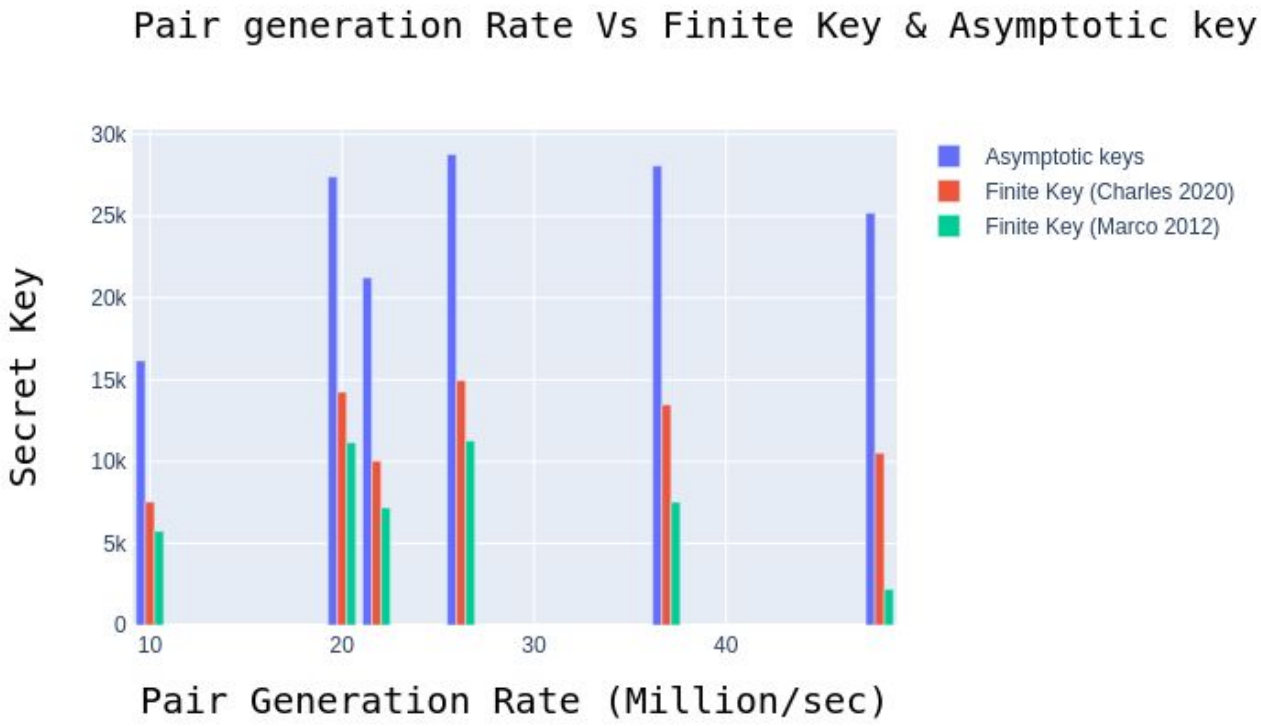




Combined Sifted Key



Finite Key with our Cascade Implementation



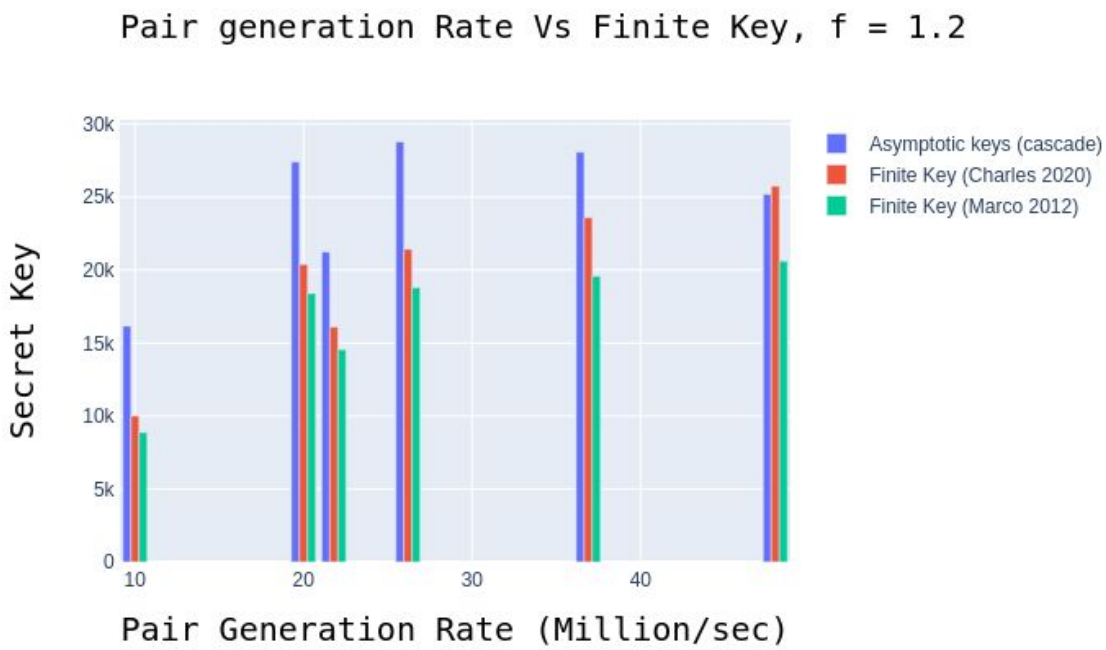
Finite key with f=1.2 assumption

Bit exposed due to syndrome computation during Error correction

r= f.h(QBER)

Our cascade has f ranging

From 1.7 to 2



Comparison with one-shot LDPC