

$\text{QNC}_1 \subset \text{noisy-BQP}$

Michael Benor David Ponnarovsky

September 15, 2024

1 The Noise Model

2 Fault Tolerance (With Resets gates) at Linear Depth.

Claim 2.1. *There is $p_{th} \in (0, 1)$ such that if $p < p_{th}$ then any quantum circuit C with depth D and width W can be computed by p -noisy, resets allowed, circuit C' , with a depth at most $\max\{D, \log(WD)\}$.*

1. Initializing Magic for Teleportation gates and encodes ancillaries.
2. Each gate is replaced by gate teleportation.
- 3.

$i \leftarrow i + 1$