

Grand Challenge der Quantenkommunikation

Evaluation Procedure



Topics

Start to agree on

- 1. PUF model**
- 2. Evaluation Process**
- 3. Information Exchange Process**
- 4. Next Workshop**

have agreed on first three points e.g. 31.10.2023

Decide whatever can be decided already quickly



PUF Model

- Different models exist
- We saw two perspectives today
- Not all details are available already today
- Theory groups are still working on models
- Expected agreement on final model is 31.10.2023



Evaluation

- **Theory projects needs information**
- Performance evaluation only after information is submitted
- We encourage publication of the code
- We'd recommend Apache 2.0 license
- We'd provide a repository
- Q.TOK proposed guidelines to structure the code
- We might agree to publish with JOSS <https://joss.theoj.org/>



Evaluation : Structuring information

- we require additional relevant physical information.
- We presented a method to systematically acquiring the information
- assumption is we will all be using Python
- "CAD" type of approach (e.g. like in LabView)
- examples of missing information are
 - Token size is 10mm^2
 - Token consists of 10qubits
- Each project please name a person to contact for information

Evaluation : Methods

- separation of environment
- time to learn system information
- how to measure model deviation
- represent qPUFs in Qiskit?
- advantage is that many gates are already written
- disadvantage might be
 - poor performance
 - inaccuracy
- we need working examples

$$G(S) = \text{tr}_E (U S \otimes G_{E_1} \otimes G_{E_2} U^+)$$



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Exchange of Information

- Systematic exchange of information seems difficult
- A monthly workshop meeting might be of much help
- it would be typically online, can also be hybrid
- question: individual meetings "1 hardware + theory" project or "all at once" ?



Next Workshop

end of the lecture free period, e.g. Beginning of October 2023?

all open points regarding the evaluation should be finally decided at the next workshop!



Evaluation : Next Workshop

Thanks for your attention!