

Assignment Assessment

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Abstract

This assignment is part of the assessment for the course Quantum Computing Advanced of the minor Applied Quantum Computing

Introduction

Guidelines for this assignment:

- This exercise is done by a team of two students.
- The deadline for submitting the exercise is a week after the assignment is issued. That is, for this assignment: 15 april 18.00 PM.
- You will create a Jupiter notebook for each exercise and hand in this notebook.
- In the notebook you will give ample comments on what you are doing and why.
- You will use Qiskit as a simulation tool.

1 Quantum walk generalised

1.1 Exercise 1

Generalise the program you created for the quantum walk on a 3-dimensional cube (or when you not have done so already, use the code for the 4-dimensional cube). Document, i.e. explain, the coding within the notebook you create.

1.2 Exercise 2

By implementing several statistical function, make some observations w.r.t. the behaviour of this algorithm and state some conclusions. Use for this diagrams, time measurements, means, or some other tool you can think

of. The observations and conclusion should be part of the notebook. For example, do experiments with different dimensional cubes (3, 4, 5, 6, ? dimensional) and measure the time needed to get to an answer, compare these times and state a conclusion about their differences.