

### 그로버 알고리즘의 양자 시뮬레이터 실험

Experiments on a Quantum Simulator for Grovers Algorithm

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# **Experiments on a Quantum Simulator** for Grover's Algorithm 그로버 알고리즘의 양자 시뮬레이터 실험

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<sup>1</sup> junyoungmin@korea.ac.kr <sup>2</sup> ichoi@korea.ac.kr \* Corresponding Author

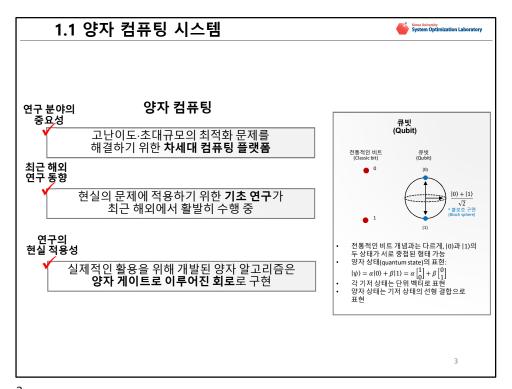
1.2 Dept. of IME, Engineering School, Korea University, Republic of Korea

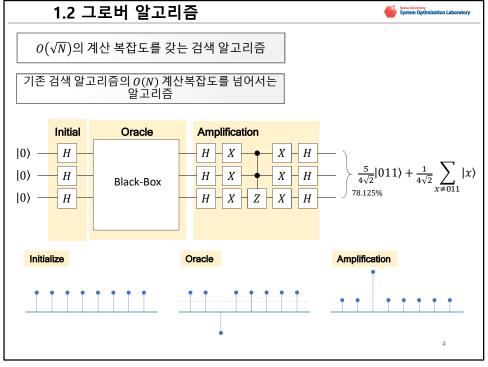
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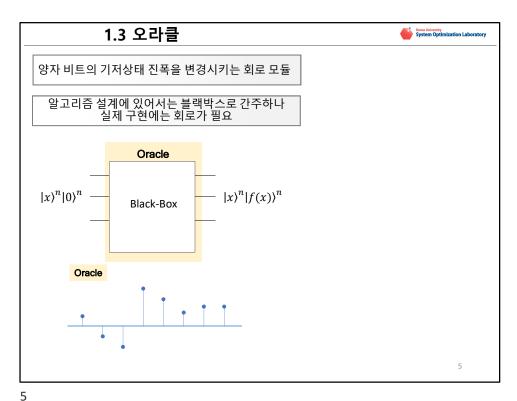
### 목차



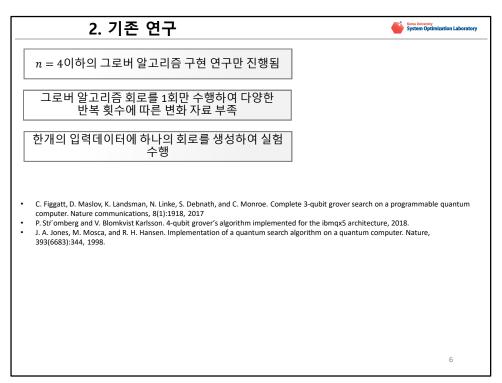
- 1. 연구 배경
  - 1. 양자 컴퓨팅 시스템 2. 그로버 알고리즘 3. 오라클
- 2. 기존 연구
- 3. 방법론
- 4. 시뮬레이션 실험 및 결과 분석
- 5. 결론

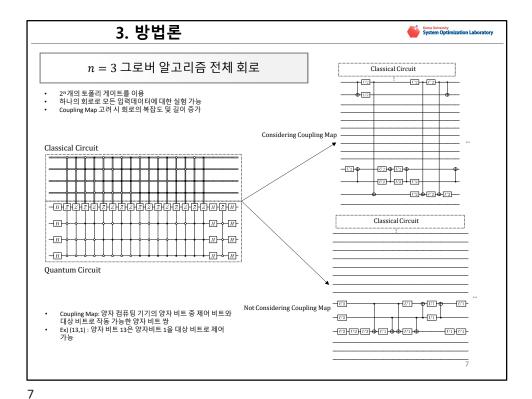


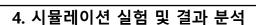




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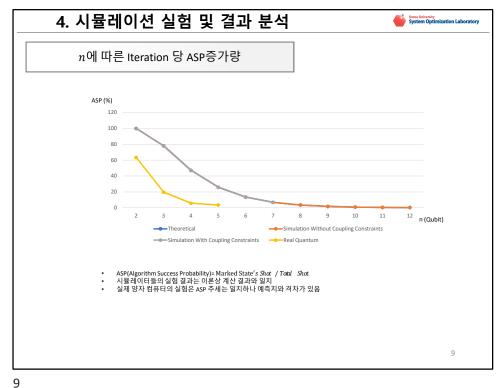


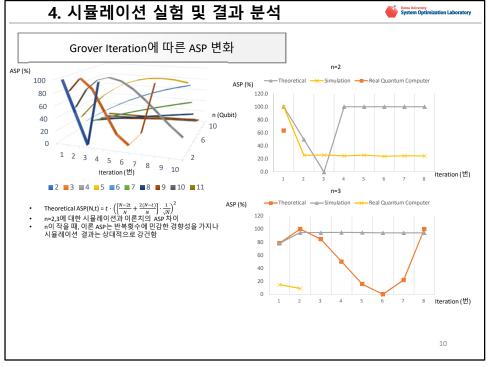
### 시뮬레이션 실험 환경

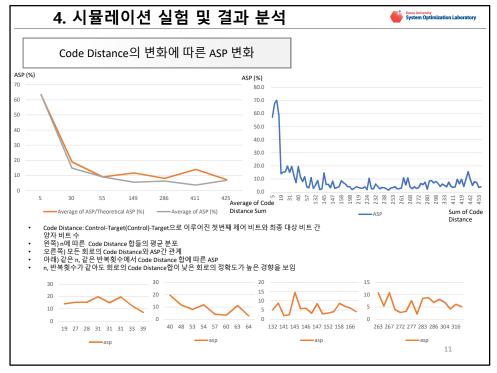
- Processor: 1.8GHz Intel Core i5
- Memory: 4GB 1600MHz DDR3 Programming Language: Python
- SDK: Qiskit
- Simulator: QASM Simulator

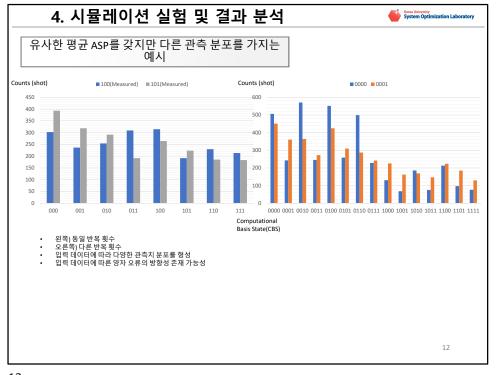
### 양자 컴퓨터 실험 환경

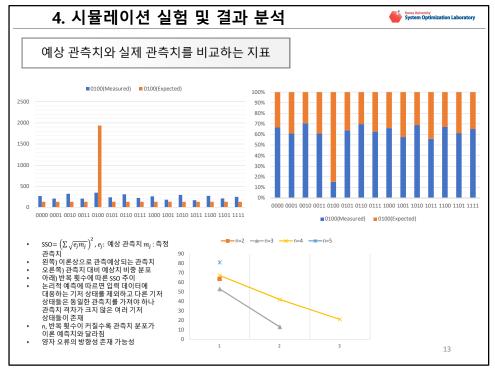
- Device: IBM Q 16 Melbourne Chip: Albatross
- N Qubits: 14
- N QUOIS: 14 Basis Gates: u1, u2, u3, cx, id Coupling Map: [11, 0], [1, 2], [2, 3], [4, 3], [4, 10], [5, 4], [5, 6], [5, 9], [6, 8], [7, 8], [9, 8], [9, 10], [11, 3], [11, 10], [11, 12], [12, 2], [13, 1], [13, 12]]

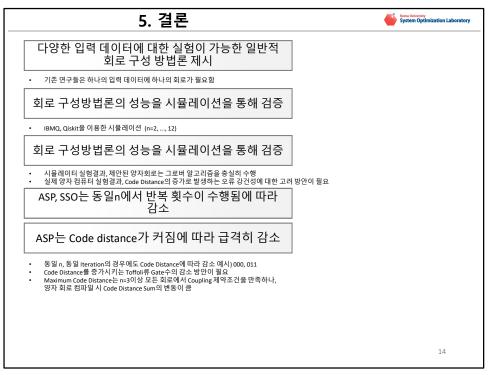












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