



Qiskit Advocates Mentorship Program Spring 2021

[Unified API to import/export circuits in Qiskit](#)

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Midterm Checkpoint

OpenQASM2



Plus	Minus
Simple and clear representation of Quantum Circuit	Low-level? High-level? Mid-level? E.g., hard to get rid of regs
Well documented	20 th century assembler style unfamiliar metaphor to young
Useful export format	Has not kept up with the technology <i>e.g.</i> classic conditionals
Industry-wide	Need for supporting OpenQASM2 delays feature rollout
Evolved in unison with gate model	Does not support Pulse



Proposed specification WIP

ANTLR Grammar

Extended Technology

Larger stakeholder group in
design

[OpenQASM3](#)

- Perfect superset of OpenQASM2?
- Q? 2022?

Qasm2 as a
module #6053

OpenQASM2 redo
ANTLR Grammar -> AST
-> QuantumCircuit
#6089

Detach QASM from
QuantumCircuit code

Adopt/adapt OpenQASM3
Grammar

load() export() functional
interface

~~AST -> DAG -> QuantumCircuit~~
AST -> QuantumCircuit

PR stage

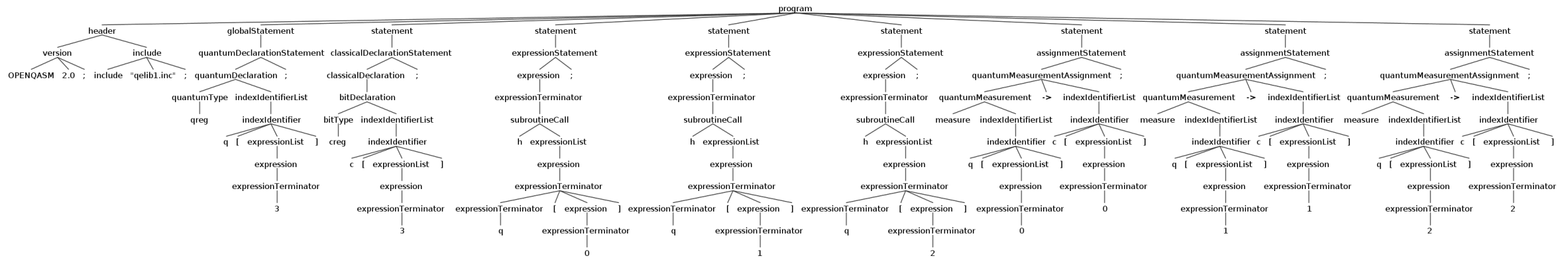
- Issue stage
- Grammar branch
- nugasm2 already goes direct
to QuantumCircuit



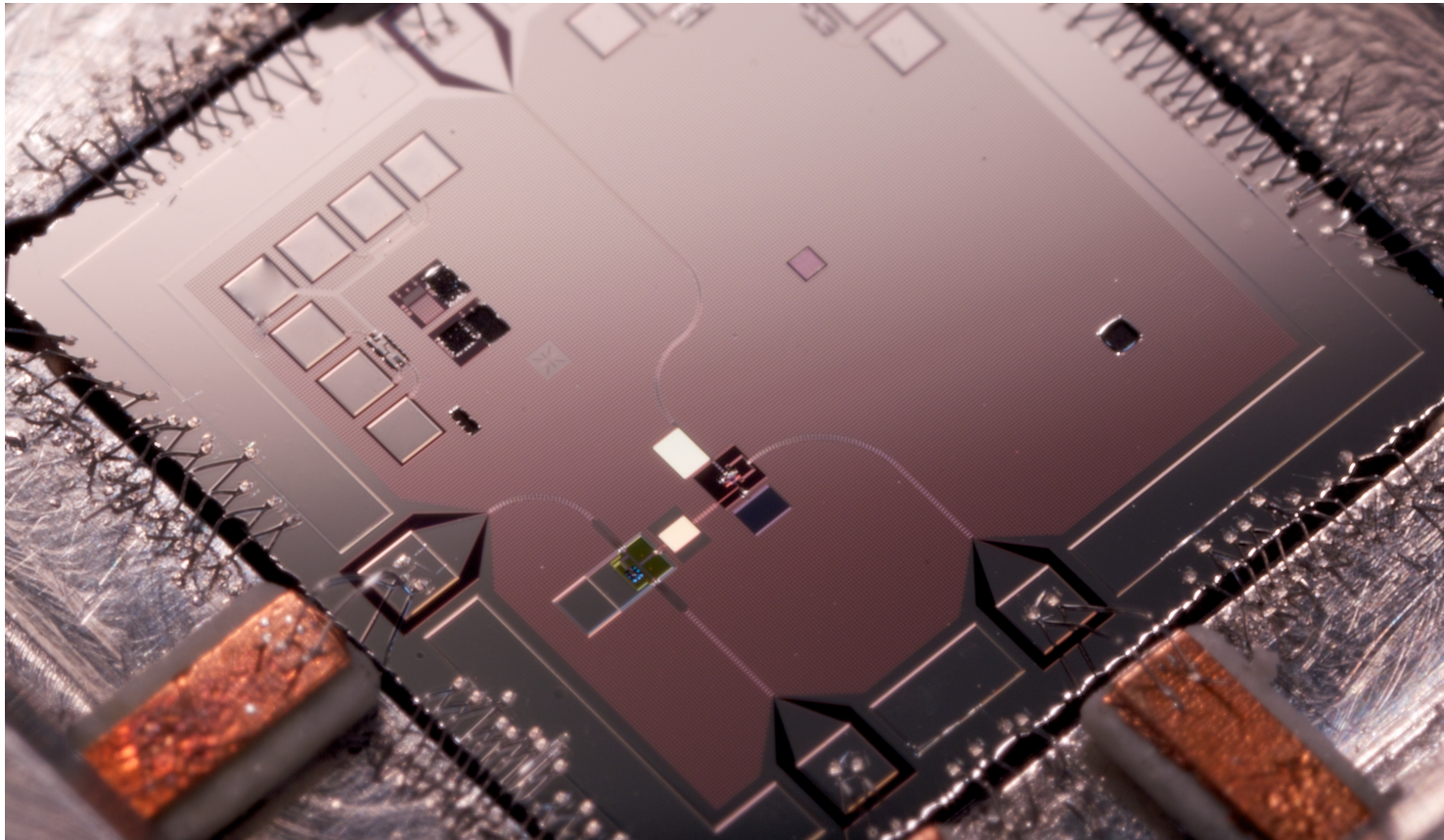
Need relief
right now

The qasm3 grammar seems to work for qasm2

```
OPENQASM 2.0;
include "qelib1.inc";
qreg q[3];
creg c[3];
h q[0];
h q[1];
h q[2];
measure q[0] -> c[0];
measure q[1] -> c[1];
measure q[2] -> c[2];
```



Thank you for participating



- *The mechanical resonator which was placed in a superposition is situated in the bottom left of the chip. The smaller white rectangle is the coupling capacitor between the mechanical resonator and the qubit.*
- Martinis Group, University of California
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