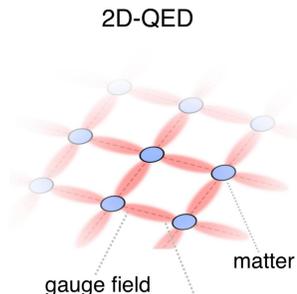


MQT Qudits Overview

Envisioned Flow

Problems suited for qudit systems



- High dimensional quantum simulation
arXiv:2310.12110



- Integer optimization
arXiv:2204.00340
- compression of quantum data
- quantum machine learning



User Input

- Extended Open QASM for qudits
- Python Interface



Data Structures / Methods

- Smart Graphs
- Machine Learning
- Heuristics
- Graph Mining
- Tensor Networks
- Decision Diagrams



Simulators

Backend

Noise Model

Mixed-Dim DDs

C++ Engine

Tensor Networks

External Libraries

Fake Backend



Platforms

- Ion Traps 
- Superconducting 

Compiler (as Passes)

Qubit Compression Map

State Preparation

Multi-Qudit Operations

Two-Qudit Operations

Single Qudit Operations

