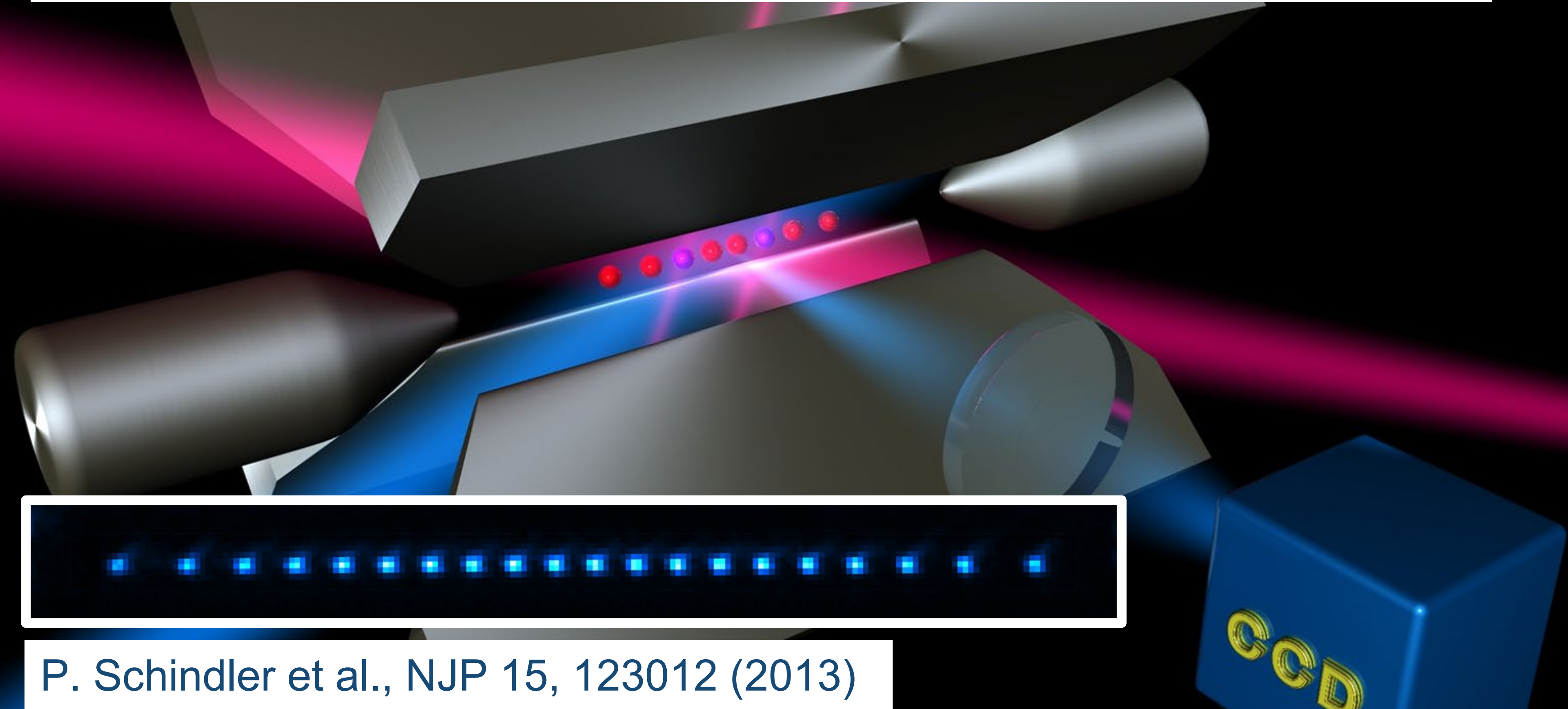
Quantenoptik & Spektroskopie
Quantum technologies with trapped ions



P. Schindler et al., NJP 15, 123012 (2013)

Quantum engineering

Research areas:

- Develop and characterising robust quantum hardware
- Reduce errors in ion-trap quantum computers
- Implement quantum algorithms

Thomas
Monz

Bachelor topics:

- Optical Integration in Quantum Technologies
- Going down the rabbit hole of quantum error correction
- Quantum computing in diamonds

Master - topics:

- Scalable quantum computing with transport operations
- Modular ion-traps: from standardised elements to trap architectures

High dimensional quantum systems

Research areas:

- Efficient quantum information processing
- Quantum Computing beyond 0 and 1
- Quantum Simulation for particle physics

Martin Ringbauer

Bachelor topics:

- Quantensimulation für die Teilchenphysik
- Verifikation von Quantencomputern

Master - topics:

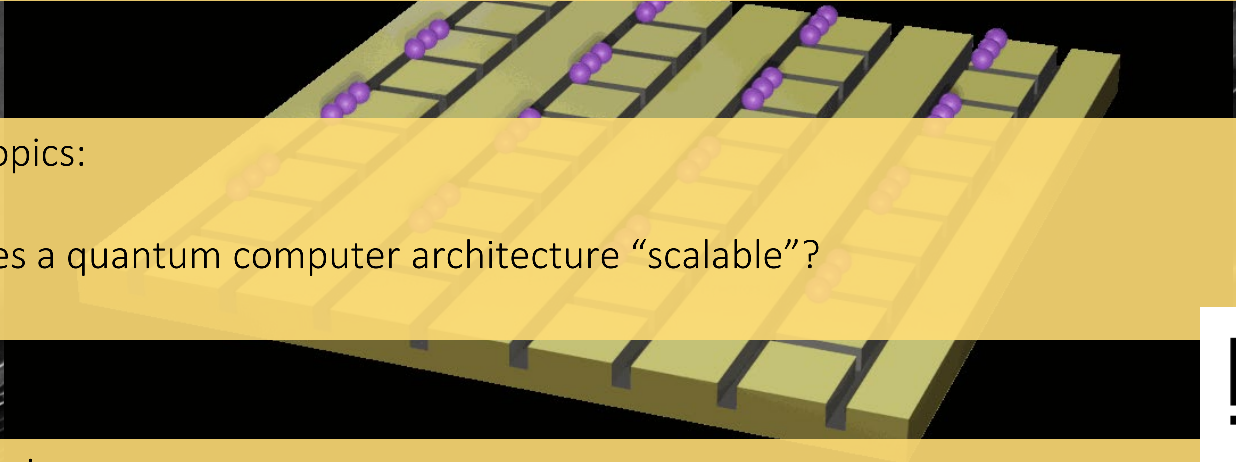
- Designing entangling gates for qudit quantum processors
- Robust calibration and control of qudit quantum processors

Scalable ion trap systems

Research areas:

Develop scalable quantum computing architectures

Philipp Schindler



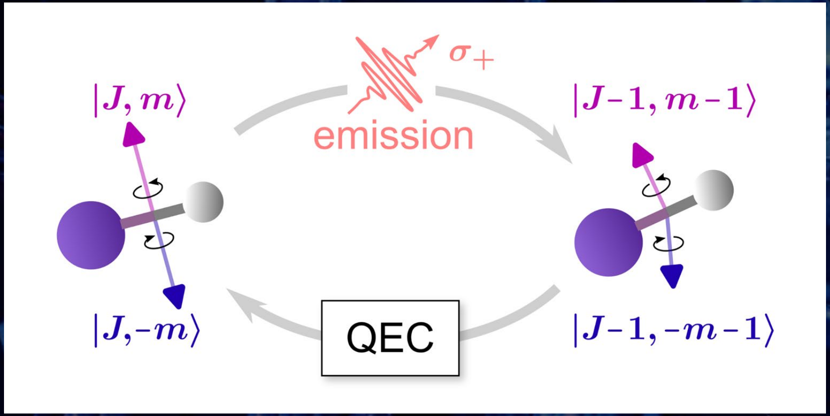
Bachelor topics:

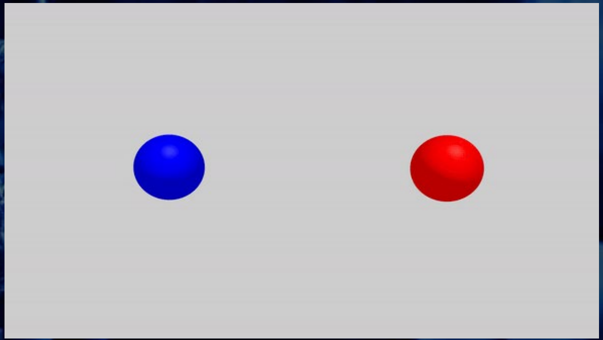
What makes a quantum computer architecture “scalable”?

Master - topics:

Modular ion trap design

Molecular quantum technologies





Quantum control of single molecular ions

Encode quantum information in single molecules

Philipp Schindler

Bachelor topics:

A novel type of quantum information - the rotation of a molecule

Master - topics:

Laser cooling a single trapped symmetric molecule

Quantenoptik & Spektroskopie

Martin Ringbauer
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Thomas Monz

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www.quantumoptics.at

BSc Themen