

Mid-circuit measurement and reset using *omg* architecture in trapped-ion quantum computing systems

Yichao Yu

Keqin Yan, Debopriyo Biswas, Vivian Zhang, Bahaa Harraz,
Crystal Noel, Christopher R Monroe, Alexander Kozhanov

Monroe Group/Duke Quantum Center

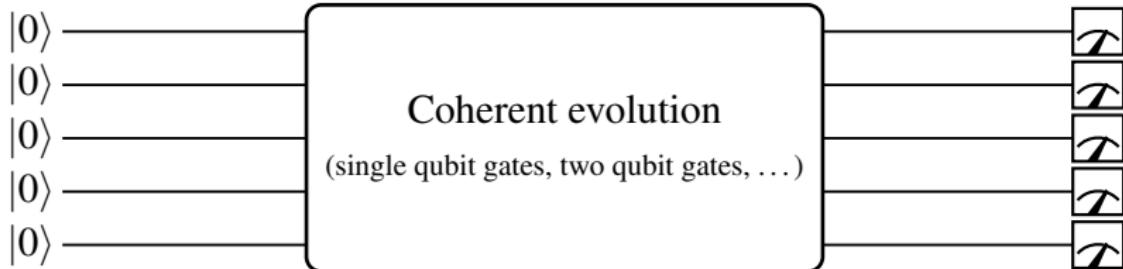
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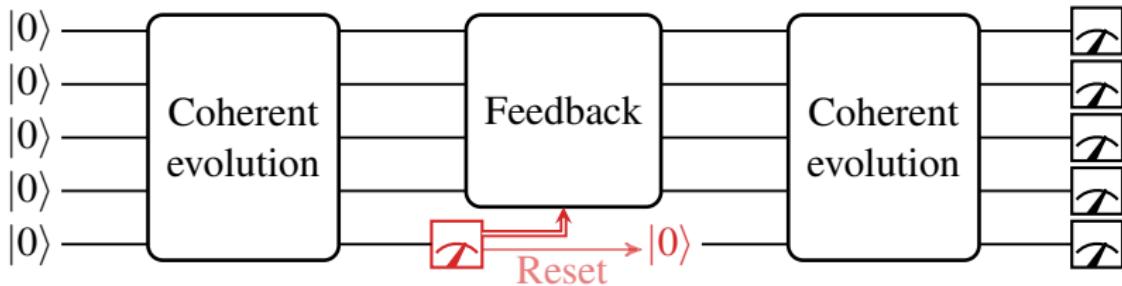
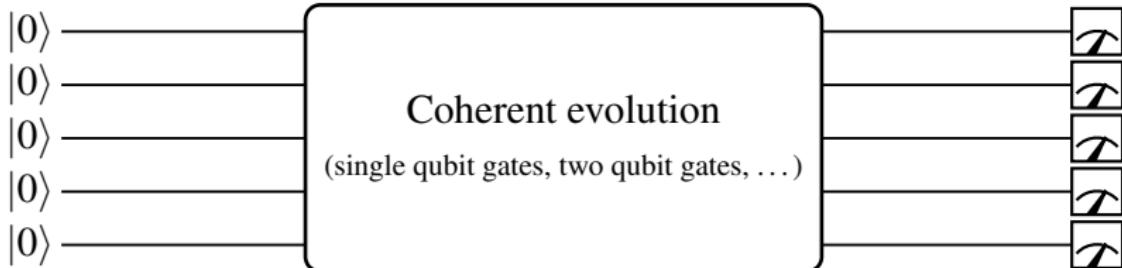
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Mid-circuit measurement and reset (MCMR)



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Aux Data Aux Data

Mid-circuit measurement and reset (MCMR)



Aux Data Aux Data

MCMR in ions

- Shuttling
- Multi-species
- Metastable states
omg-architecture

Mid-circuit measurement and reset (MCMR)



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Mid-circuit measurement and reset (MCMR)



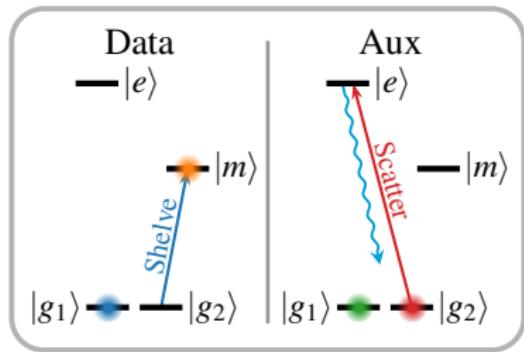
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MCMR in ions

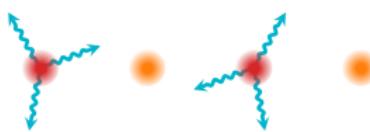
- Shuttling
- Multi-species
- Metastable states
- *omg*-architecture

- Yb: $D_{3/2}$, $D_{5/2}$, $F_{7/2}$
- Ba: $D_{3/2}$, $D_{5/2}$
- Sr: $D_{3/2}$, $D_{5/2}$

MCMR with metastable state — shelving method

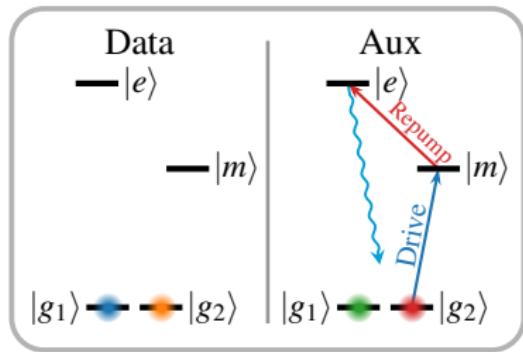


Individual Shelfe



Aux Data Aux Data

MCMR with metastable state — hands-off method



Individual Drive



Aux Data Aux Data

Individual control of metastable state



Christopher R Monroe



Alexander Kozhanov



Crystal Noel



Keqin Yan



Vivian Zhang



Debopriyo Biswas



Bahaa Harraz



