(T)Here and (hopefully) not back again

Narrated by Ieva Čepaitė

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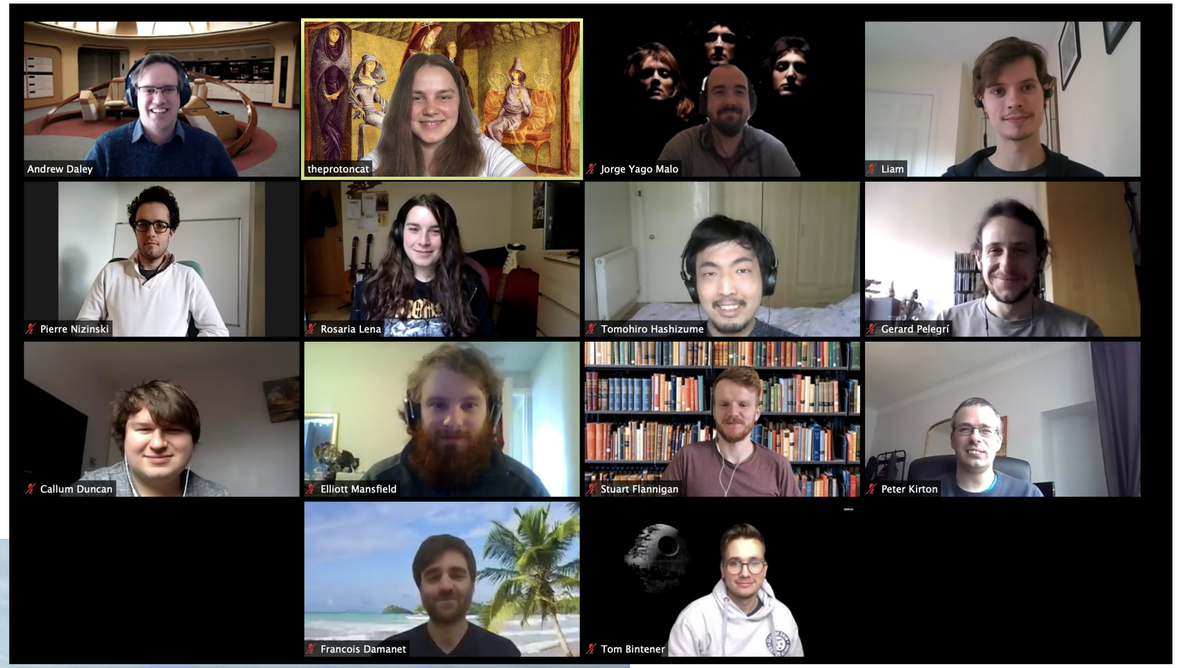
IGSQT International Graduate School for Quantum Technologies

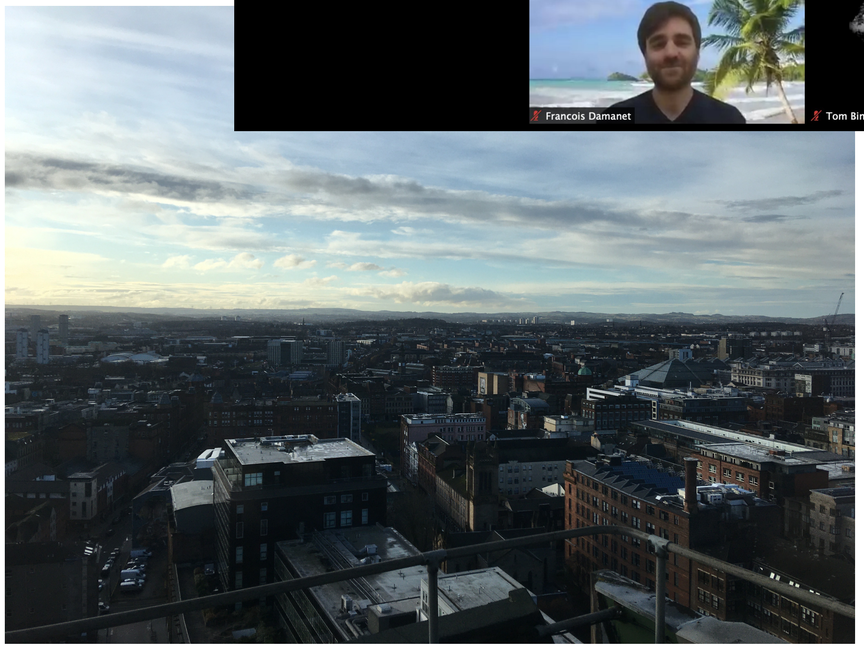
The Journey

- Elham Kashefi's Quantum Information group at the University of Edinburgh
  - Quantum Cryptography
  - Quantum Machine Learning
- Kai Dieckmann's experimental group at CQT, Singapore
  - Ab Initio and DFT calculations for Li^7K^{40} atoms

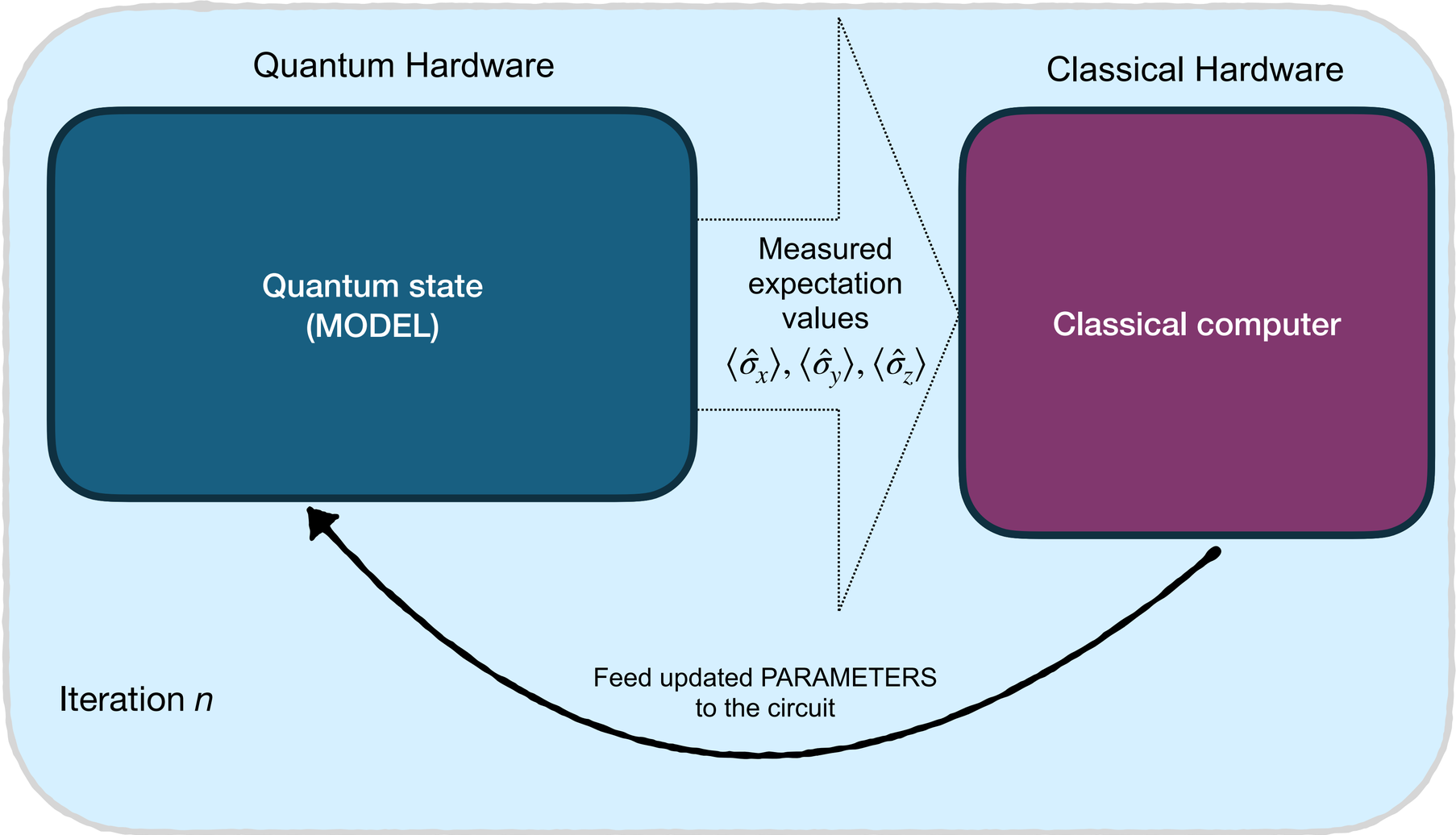
The Present: QOQMS

- Quantum Optics and Quantum Many-Body Systems
  - Group led by Andrew Daley
- Solving PDE's with Variational Quantum Algorithms
  - Improve speed/results
  - Just a bit difficult!
- Variational Counterdiabatic Driving
  - Improve adiabatic quantum processes

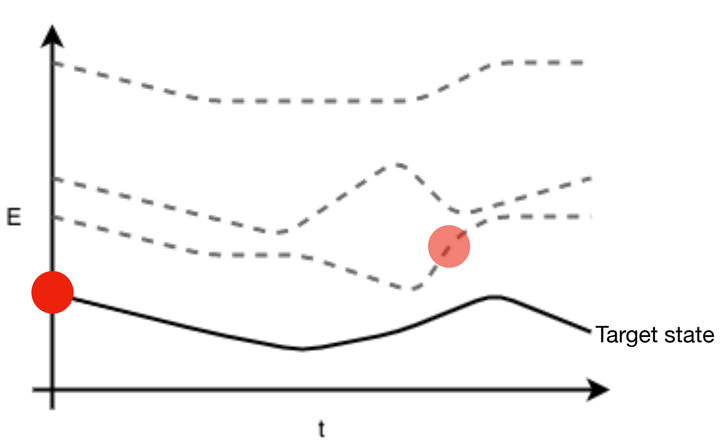




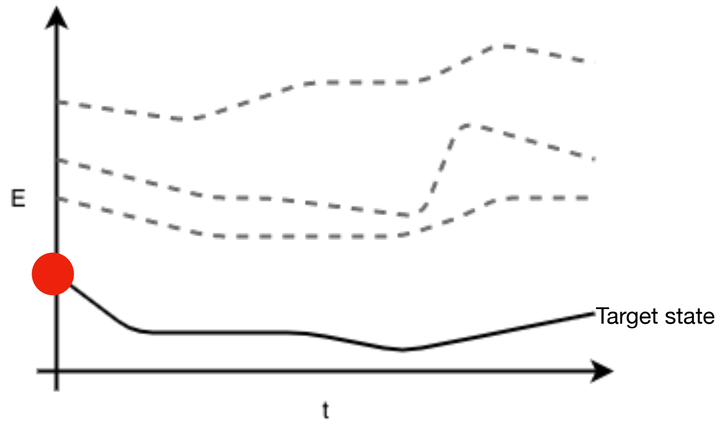
Variational Quantum Algorithms

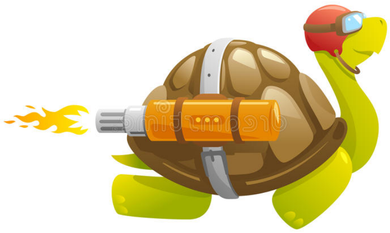


Counterdiabatic (CD) Driving



Add CD driving





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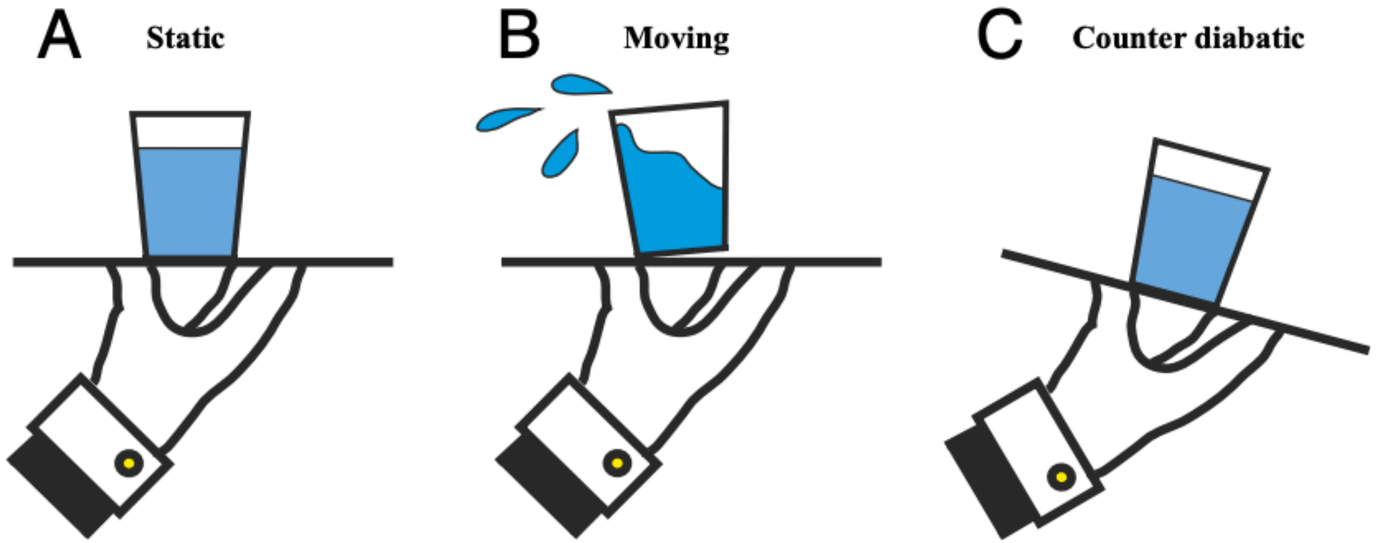
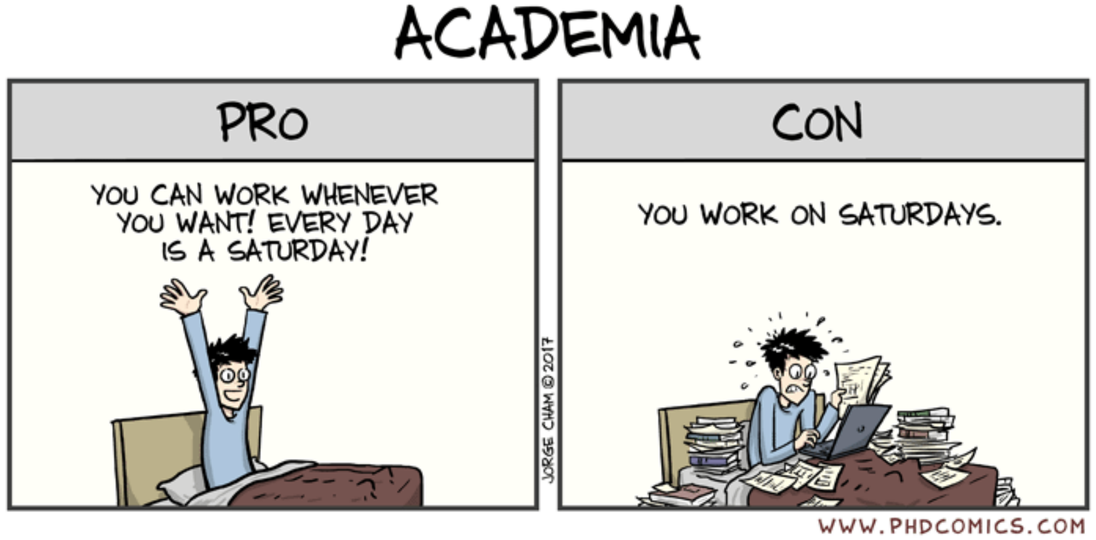


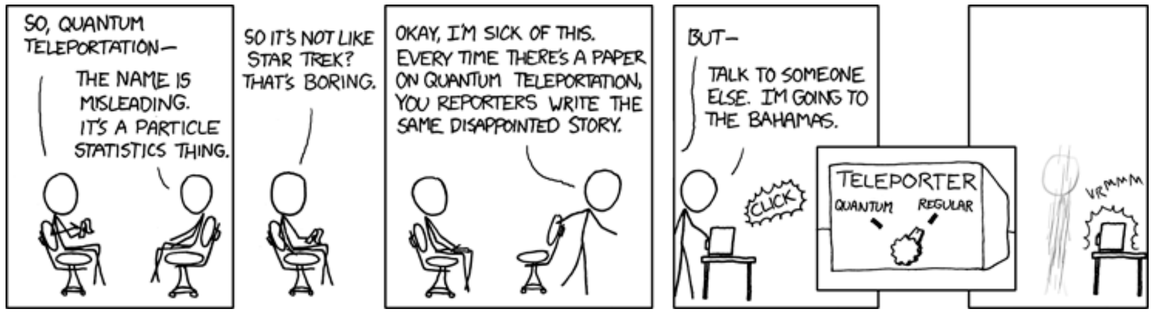
Sels, D., Polkovnikov, A., 2017. *Minimizing irreversible losses in quantum systems by local counterdiabatic driving*.
PNAS 114, E3909–E3916

Advice/Tips



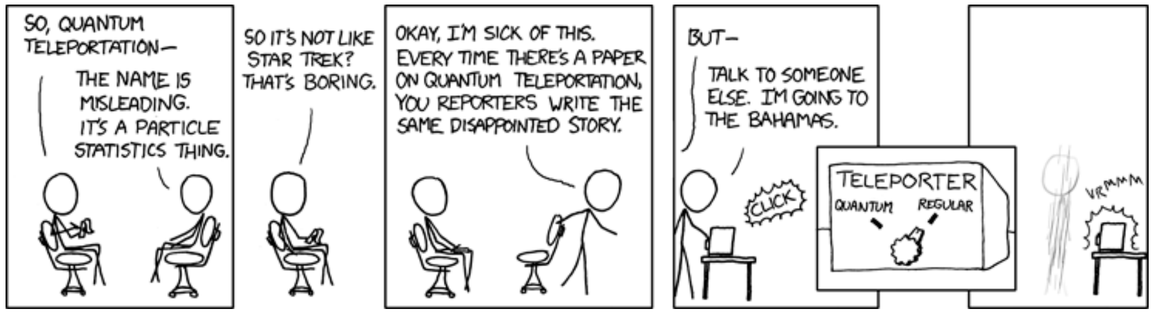
- Be curious! Delve into your interests…
  - … but learn to compartmentalise and focus
- Network, attend conferences and seminars
  - Even if (sadly) they're online for now
- Take BREAKS (in fact, plan for them)

Advice/Tips



- Learn to ask questions
  - You're not losing "intelligence capital" by learning from people who know better
- Appreciate that you get to see and learn about things that are absolutely insane
- Forgive yourself for your mistakes

Advice/Tips



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Thank you for listening :)