

1st Workshop on Parallel Quantum Computing

University of Edinburgh - 8 September 2013

The First Workshop on Parallel Quantum Computing (ParQ 2013) was held in conjunction with the 22nd International Conference on Parallel Architectures and Compiler Techniques (PACT 2013) in Edinburgh, United Kingdom on 8th of September 2013.



This was the first workshop focusing on parallel quantum computing, a very specific subfield of quantum computing. As such the main goal was to bring together scientists from all over the world working on all the aspects of parallel quantum computing. This succeeded and the workshop had altogether twelve speakers from eleven institutions and the total number of participants was around twenty five. The topics of the papers fell roughly into the following main categories:

- Parallel quantum algorithms
- Optimisation of quantum circuits
- Quantum depth complexity
- Distributed quantum computing
- Quantum parallel architectures

Interest in participating was very large, especially considering the narrow theme of the workshop, and as such the programme was very tight, including ten 20 minute regular talks and two 40 minutes long keynote talks from invited speakers Simon Devitt and Martin Roetteler. The

success of the event will hopefully motivate to run future workshops on the topic of parallel quantum computing.

Speakers:

- Seiseki Akibue (University of Tokyo, Japan)
- Bobby Antonio (University College London, UK)
- Steve Brierley (University of Bristol, UK)
- Simon Devitt (National Institute of Informatics, Japan) - Invited speaker
- Matthew Hoban (University of Oxford, UK)
- Viv Kendon (University of Leeds, UK)
- Jarrod McClean (Harvard University, USA)
- Jisho Miyazaki (University of Tokyo, Japan)
- Einar Pius (University of Edinburgh, UK)
- Martin Roetteler (Microsoft Research, USA) - Invited speaker
- Peter Selinger (Dalhousie University, USA)
- Yves Vandriessche (Vrije Universiteit Brussel, Belgium)

Organisers:

- Elham Kashefi (University of Edinburgh)
- Einar Pius (University of Edinburgh)