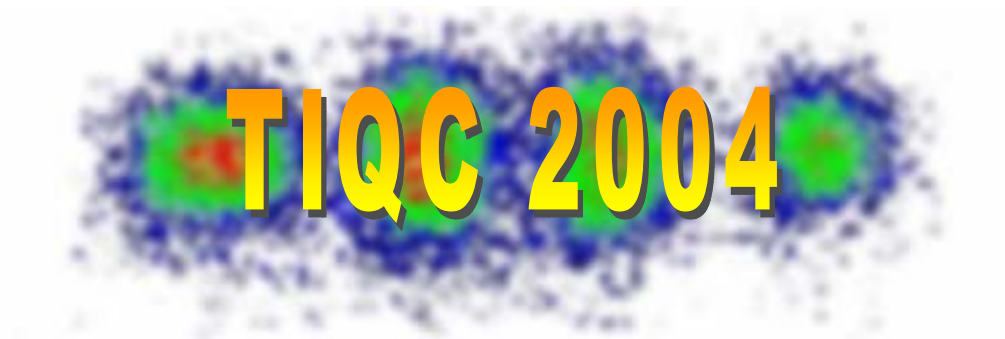


Trapped Ion Quantum Computing Workshop



University of Michigan
Ann Arbor
May 13-15, 2004

PROGRAM



NIST

MCTP
Michigan Center for Theoretical Physics

ARDA



Updated 4 May 2004.

Thursday May 13, 2004

8:30 - 9:00 Registration at conference lecture hall - Room 340, West Hall.

Morning session – Chair: Rainer Blatt

9:00 - 9:45 Andrew Steane (Oxford Univ.) - Octopole traps, push and wobble gates, and cooling.

9:45 - 10:30 Patrick Gill (NPL, Teddington) - Trapped ion techniques in Sr⁺ and Yb⁺ for QUIP.

10:30 - 11:00 *Coffee break*

11:00 - 11:45 David Wineland (NIST-Boulder) - Experiments at NIST towards scalable processing.

11:45 - 2:00 *Lunch break*

Afternoon session – Chair: Luming Duan

2:00 - 2:45 Christoph Wunderlich (Univ. of Hamburg) - Experiments with individual Yb⁺ ions.

2:45 - 3:30 Gerard Milburn (Univ. of Queensland) - Quantum phase transitions in an ion trap.

3:30 - 5:30 **Poster Session** – Fourth floor, Randall Laboratory.

5:30 - 7:00 *Reception at UM Museum of Natural History*

Friday May 14, 2004

Morning session – Chair: David Wineland

9:00 - 9:45 Ignacio Cirac (Max Planck Inst., Garching) - Fast gates and quantum simulations with trapped ions.

9:45 - 10:30 Christopher Monroe (Univ. of Michigan) - Approaches to ion trap QC: cold, fast, and small.

10:30 - 11:00 *Coffee break*

11:00 - 12:30 **Roundtable Discussion**

12:30 - 2:00 *Lunch break*

Afternoon session – Chair: Peter Zoller

2:00 - 2:45 Rainer Blatt (Univ. of Innsbruck) - Nuts and bolts of the Innsbruck ion trap effort.

2:45 - 3:30 Dana Berkeland (Los Alamos National Lab.) - Strontium ions in a linear rf trap.

3:30 - 4:00 *Coffee break*

4:00 - 4:45 Isaac Chuang (MIT) - The threshold for fault-tolerant scalable ion trap quantum computers.

4:45 - 5:30 Mike Drewsen (Univ. of Aarhus) - The Aarhus ion quantum logic project: Status and prospects.

6:30 *Dinner at Bella Ciao (business-casual attire)*

Saturday May 15, 2004

Morning session – Chair: Andrew Steane

- 9:00 - 9:45 Luming Duan (Univ. of Michigan) - Ion trap scaling with fast gates and probabilistic ion-photon networks.

- 9:45 - 10:30 Wolfgang Lange (Max Planck Inst., Garching) - Controlled single photons in ion-trap cavity-QED.

- 10:30 - 11:00 *Coffee break*

- 11:00 - 11:45 Lin Tian (Univ. of Innsbruck) - Scalable ion trap quantum computing by interfacing with solid-state devices.

- 11:45 - 12:30 Mike Chapman (Georgia Tech.) - Cavity QED with trapped atoms and ions.

- 12:30 - 2:00 *Lunch at Dominick's (seating outdoors)*

