Student Presentations

Goals:

- **Interpret current research results** in quantum information science
- **Extract relevant information** from scientific papers, possibly neglecting details
- **Communicate your understanding** of a scientific topic in an aural presentation
- **Summarize the scientific content** of a paper in short written form (abstract)

Student Presentations

- **Topics**: Implementations of quantum information processing
- **Goal**: present key features of implementation
- **Material**: research paper + review articles
- **Preparation**: teams of **2 students**, advice and support by TA:

  Farruh Abdumalikov: abdumalikov@phys.ethz.ch
  Stefan Filipp: filipp@phys.ethz.ch
- **Duration**: presentation + discussion (30 min talk +15 discussion)
- **Presentation**: PowerPoint, blackboard, transparencies
- **Time:** within the QSIT:Experimental exercise class + extra slots (lecture/Fridays)
- **Abstract:** short, concise abstract (~100-150 words) of your presentation
- **Feedback:** evaluation form on both content and presentation of your talk

Topics

date (prel.)	#	topic	student 1	student 2
22.10.2012	1	State- & Process- tomography		
29.10.2012	2	Josephson Junction Devices – Basics		
05.11.2012	3	Standard Measurements in QIP (Rabi, Ramsey, Spin-echo)		
12.11.2012	4	Superconducting circuits: universal quantum gates		
19.11.2012	5	Superconducting circuits: Toffoli gate and error correction		
26.11.2012	6	Implementing gates in quantum dot spin qubits		
03.12.2012	7	Experimental violations of Bell inequalities with photons		
10.12.2012	8	Multiparticle entanglement with trapped ions		
17.12.2012	9	Shor algorithm in NMR		
	10	Spin qubits in quantum dots		
	11	Coupling of quantum dots to a resonator		
	12	Experimental demonstrations of teleportation with photons		
	13	Quantum Memory and Repeaters		
	14	Quantum Cryptography		
	15	Digital quantum simulation with trapped ions		

- priority topics (to be filled first)
- extra topics (to be filled only if priority topics are already chosen)

Your Presentation Schedule

- next week: sign up for a presentation (paper list or per email)
- 2-3 weeks before your presentation: have **a look at the papers**
- 2 weeks before : meeting with TA (write email to Abdumalikov & Filipp) to **discuss relevant aspects** which should be in your presentation
- in the week before: **discuss your slides with TA**, first draft of the **abstract**
- 1-2 days before: send **final version of abstract** to your TA