

Introductory course on quantum information, July 7th – 10th 2014

Organized by University of Innsbruck, the SFB project "Foundations and applications of quantum science" (FoQus), and the Institute for Quantum Optics and Quantum Information (IQOQ). Organisers: Marti Cuquet, Ben Lanyon, Adi Makmal

Program

Mon, 07.07. (IQOQI, 3rd Floor, see map)

20:00 – 21:00 Registration

20:00 – 22:00 Evening get-together

Tue, 08.07 (Seminar room, Hörsaal C, see map)

09:00 – 09:15	Ben Lanyon	Welcome
09:15 – 09:45	Adi Makmal	Introduction to quantum information (QI)
10:00 – 10:45	Charles Rogers	Basic concepts of quantum computing (QC)
11:00 – 11:45	Marcello Dalmonte	Introduction to quantum simulation (QS)
11:45 – 13:30	<i>Lunch Break</i>	
13:30 – 14:15	Gilad Gour	QI theory & quantum correlations
14:30 – 15:15	Michalis Skotiniotis	Quantum communication and metrology
15:30 – 16:30	<i>Break with refreshments</i>	
16:30 – 19:00	Lab tours at university	

Wed, 09.07 (Seminar room, Hörsaal C, see map)

09:00 – 09:45	Ben Lanyon	QI with trapped ions
10:00 – 10:45	Michael Trupke	Hybrid and scalable quantum systems
11:00 – 11:45	Roe Ozeri	Introduction to quantum error correction
11:45 – 13:30	<i>Lunch break</i>	
13:30 – 14:15	Florian Schreck	QS with cold atoms
14:30 – 15:15	Gregor Weihs	Entangled photons
15:30 – 16:00	<i>Break with refreshments</i>	
16:00 – 17:00	Open panel discussion	

Thur, 10.07 (Seminar room, Hörsaal C, see map)

09:00 – 09:45	Thomas Monz	Characterising QI experiments
10:00 – 10:45	Gerhard Kirchmair	Superconducting qubits
11:00 – 11:45	Rupert Ursin	Experimental quantum communication
11:45 – 13:30	<i>Lunch break</i>	

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Thur, 10.07 (Various locations)

SFB Colloquium (Seminar room, Hörsaal C, see map)

14:00 – 14:45 Tracy Northup Building quantum networks with ions
in optical cavities

14:45 – 15:15 Break with refreshments

15:15 – 16:00 Andreas Läuchli Quantum information, quantum matter
and quantum field theory

IQOQI open day (IQOQI building)

16:00 – 17:00 IQOQI lab tours and open day

IQOQI 10-year celebration and public talk (Centrum für Chemie und Biomedizin -
Innrain 80/82)

19:00 – onwards Public talk by Nobel laureate Bill Phillips followed by BBQ

Fri, 11.07

SFB Colloquium (Seminar room, Hörsaal A, see map)

9:00 – 9:45 Simon Fölling Two-orbital quantum gasses with ultracold ytterbium

9:45 – 10:15 Petar Jurcevic

10:15 – 10:45 Coffee Break

10:45 – 11:10 Burak Sahinoglu Characterizing topological order with matrix product
operators

11:10 – 11:35 Sebastian Krämer Self-ordering dynamics of ultracold atoms in
multicolored cavity fields

11:35 – 12:00 Thomas Milburn Quasi-adiabatically encircling exceptional points

12:00 – 12:25 Jacques Pienaar The fate of the common cause principle in quantum
mechanics