Quantum [Un]Speakables II: 50 Years of Bell's Theorem

19 – 22 June 2014, University of Vienna & Austrian Academy of Sciences

Welcome to Vienna!

For your convenience, please find enclosed a detailed schedule, participant list, and further useful information.

Our **on-site conference office** will be open for questions and information during **coffee breaks** and **lunch breaks**.

Our students and staff will also be pleased to help you. All **team members** are wearing **red badges**, to make them easier for you to spot.

Emergency telephone number: **+43 664 1222 173** (Andrea Aglibut)

A list of relevant restaurants with a map is enclosed. Smartphone users may find the Quantum [Un]Speakables **google map** at http://goo.gl/QNuvsB convenient.

Please note that the **doors** to the lecture hall will be **locked after the last talk of the day**, and the main entrance doors will automatically lock at 8 pm, so please make sure not to leave personal items behind. Be careful not to leave valuables unattended in the lecture hall, as there have been (isolated) instances of theft during conferences.

WiFi access: A voucher with your individualized access code is enclosed with your name badge.

SCHEDULE

Wednesday, June 18

5:00 pm — *Conference Registration*
Poster boards will be assigned during registration.
Physics Faculty, University of Vienna, Boltzmanngasse 5, 1090 Vienna
1st floor

7:00 pm — *Reception*
Physics Faculty, ground floor. Finger food and drinks will be provided.

Thursday, June 19

8:00 am — *Conference Registration*
Poster boards will be assigned during registration.
Physics Faculty, University of Vienna, Boltzmanngasse 5, 1090 Vienna
1st floor

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9:00 am	*Welcome & Introduction* by the Conference Chairs, **Reinhold Bertlmann & Anton Zeilinger** Physics Faculty, 1st floor, Lise-Meitner Lecture Hall
9:20 am	Our guest of honor, **Mary Bell**, will speak a few words.
9:35 am	**David Mermin** Putting the Scientist into the Science
10:10 am	**Paul Kwiat** Xtreme Nonlocality
10:45 am	*Coffee Break*
11:15 am	**Valerio Scarani for Nicolas Gisin** Quantum correlations in Newtonian space and time: faster than light communication or nonlocality
11:50 am	**Caslav Brukner** Can quantum-mechanical description of causal relations be considered complete?
12:25 pm	*Poster Session & Lunch* To find poster areas, please refer to the enclosed poster list & floor plan. Sandwiches will be served in the poster areas.
3:00 pm	**Dagmar Bruß** Designing Bell Inequalities via Tsirelson bounds
3:35 pm	**Gregor Weihs** A GHZ experiment under strict Einstein locality conditions
4:10 pm	**Sven Ramelow** On Closing Loopholes in Bell Experiments
4:35 pm	*Coffee Break*
5:05 pm	**Helmut Rauch** Search for hidden variables in neutron experiments
5:40 pm	**Beatrix Hiesmayr** Testing Bell's Theorem in High Energy Physics
7:00 pm	*Conference Dinner* at Hengl-Haslbrunner, one of Vienna's traditional Heurigen restaurants. Directions are enclosed. If you need single tickets for public transport, please get them at the conference desk, which is open for you during coffee and lunch breaks. Bus shuttles from Hengl-Haslbrunner to the Faculty of Physics will be provided at 10:15 pm and ca. 11 pm.

Friday, June 20

9:00 am	**Rupert Ursin** Quantum Optics Experiments using Satellites
9:35 am	**Valerio Scarani** A full state in a single number

10:10 am **Andrew White**
Physics above and below the Bell horizon:
re-examining quantum foundations and glimpsing the
post-quantum world via photonics

10:45 am *Coffee Break*

11:15 am **John M. Martinis**
Superconducting Xmon qubits with gate fidelity
at the surface code threshold

11:50 am **Barbara Kraus**
The maximally entangled set of multipartite quantum states

12:25 pm *Lunch Break & Lab Tours*
To join one of the **lab tours**, please gather at the lab tour meeting point of your choice, which will be signposted near the conference desk.
To join one of the half-hour **guided tours through the historical collection** of the Faculty's science instruments, please sign up at the conference desk.

2:30 pm **John F. Clauser**
Some Bell's Theorem Test Loopholes added in the last 36 years

3:05 pm **Markus Aspelmeyer**
Entanglement in massive systems: what do we learn?

3:40 pm **Michael Horne**
On Spatial Entanglement Wavefunctions

4:05 pm *Coffee Break*

4:35 pm **Jeffrey Bub**
Whose Information? Information About What?

5:10 pm **Reinhold Bertlmann**
Magic Moments with John Bell: Collaboration and Friendship

5:45 pm *Dinner Break*

8:00 pm *Public Lecture*
Alain Aspect
From Einstein's intuition to quantum bits: a new quantum age
Austrian Academy of Sciences
Großer Festsaal, Dr. Ignaz Seipel-Platz 2
1010 Vienna, 1. Stiege, 1. Stock
Directions are enclosed. If you need single tickets for public transport, please get them at the conference desk.

Saturday, June 21

9:00 am **Otfried Gühne**
Analyzing multiparticle quantum states: problems and solutions

9:35 am **Antonio Acin**
Quantum non-locality: a resource for information processing

10:10 am **Robert Spekkens**
On causal explanations of quantum correlations

10:45 am *Coffee Break*

11:15 am **Marek Zukowski**
Non-locality? –It ain't necessarily so

11:50 am **Terence Rudolph**
My struggle to face up to un-reality

12:25 pm *Lunch Break & Lab Tours*
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2:30 pm **Harald Weinfurter**
Heralded entanglement between distant atoms.
Towards a loophole free test of Bell's inequality?

3:05 pm **Adan Cabello**
Quantum correlations: where, how and why

3:40 pm **Marissa Giustina**
Bell violation with entangled photons,
free of the fair-sampling assumption

4:05 pm *Coffee Break*

4:35 pm **Daniel Greenberger**
tba

5:10 pm **Howard Wiseman**
Causation and the Two Bell's Theorems of John Bell

5:45 pm *Dinner Break*

8:00 pm **Guided City Walks**
Guided tours will start from the main University building: Universitätsring 1, 1010 Vienna. The city guides will be waiting for their groups on the large staircase in front of the University, carrying signs. Directions are enclosed. If you have not signed up for a guided city walk but would like to join, please sign up at the conference desk.

Sunday, June 22

9:00 am **Renato Renner**
The freedom of choice assumption and its implications

9:35 am **Jan-Åke Larsson**
Bell violation with entangled photons, free of the coincidence-time loophole

10:10 am *Conference Photo*

10:45 am *Coffee Break*

11:15 am **Andrew Whitaker**
John Bell and Quantum Information Theory

11:50 am	**Reinhard F. Werner** Steering, and maybe why Einstein didn't go all the way to Bell's argument
12:25 pm	*Light Lunch* Sandwiches will be served.
1:30 pm	**Simon B. Kochen** Quantum Mechanics in a New Key
2:05 pm	**Anton Zeilinger** New Dimensions for Entangled Photons
2:40 pm	*Farewell & Coffee*