Tentative schedule for the talks
Testing Quantum Aspects of Gravity in a Laboratory 2022
28 March - 1 April

Time: 14:00 CEST

(All Time in CEST) All Talks are for 20+5 minutes, abundant time for panel discussions

Session notes will be taken by:

Martine Schut, Marko Toros, Ryan Marshman, Yue Ma, Julen Pedernales

Monday [Chair: Anupam Mazumdar, Julen Pedernales]

14:00 - 14:20 Introduction & chaired by Anupam Mazumdar + Lorentz Centre
   Chair: Julen Pedernales

14:20 - 14:45 Ron Folman Stern-Gerlach Interferometry with massive objects

14:45 - 15:10 Carlo Rovelli
       5 Minutes break

15:15 - 15:35 Peter Barker Electrodynamic levitation for measurement of small forces.

15:35 - 16:05 Panel Discussion (20 min) + break

[Chair: Daniel Carney, Martine Schut]

16:05 - 16:30 Vlatko Vedral

16:30 - 16:55 Angelo Bassi “Seven non-standard models coupling quantum matter and gravity”.
       5 Minutes break

17:00 - 17:25 Gary Steele “Prospects for testing quantum and gravity using superconducting electromechanics”

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Tuesday [Chair: Martin Plenio, Yue Ma]

14:00 - 14:10 Summary presentation of the first day meeting

14:10 - 14:35 Hendrik Ulbricht: ‘Classical and quantum aspects of gravity probed by levitated mechanical systems’
14:35 - 15:00 Igor Pikovski Prospects for interference of gravitational time dilation.

5 Minutes break

15:05 - 15:30 Mauro Paternostro Quantum neuromorphic approach for sensing gravity-induced entanglement

15:30 - 16:00 Panel Discussion (20 min) + break

[ Chair: Sougato Bose, Chiara Marletto]

16:00 - 16:25 Brian D’ Urso Approaching the Standard Quantum Limit of Image-Based Pulsed Position Measurements
16:25 - 16:50 Marko Toros Mechanism for the quantum natured gravitons to entangle masses

5 Minutes break
16:55 - 17:25 Daniel Carney Comments on locality in gravitational entanglement experiments
17:25 - 18:25 Panel Discussion [ Lead by Martin Plenio, Sougato Bose, Yue Ma, Martine Schut ]

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Wednesday [ Chair: Myungshik Kim, Marko Toros]

14:00 - 14:10 Summary presentation of the second day meeting

14:10 - 14:35 Ryan Marshman Probing for new forces with entanglement.
14:35 - 15:00 Chiara Marletto

5 Minutes break
15:05 - 15:30 Julen Pedernales Enhancing Gravitationally Mediated Entanglement

15:30 - 16:00 Panel Discussion (20 min)/Coffee break (10 min)

[ Chair: Peter Barker, Chiara marletto ]

16:00 - 16:25 Andy Geraci Precision sensing with levitated nano-objects: from surface forces to gravitational wave detection
16:25 - 16:50 Tong Cang Li “Casimir effects and torque detection with an optically levitated nanoparticle near a surface.”

5 Minutes break
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16:55 - 17:25 Ivette Fuentes *Exploring the unification of quantum theory and general relativity with a Bose-Einstein condensate*

17:25 - 17:50 Gavin Morley *Towards a spatial superposition of a levitated microdiamond*

17:50 - 18:35 Panel Discussion [Lead by Peter Barker, Myungshik Kim, Chiara Marletto, Marko Toros]

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Thursday [ Chair: Ulbricht Hendrik, Ryan Marshman ]

14:00 - 14:10 Summary presentation of the third day meeting
14:10 - 14:35 Catalina Curceanu *Underground tests of Quantum Mechanics Collapse models and Pauli Exclusion Principle*
14:35 - 15:00 Magdalena Zych *Can gravity be a Local Classical Channel? Insights from atom interference experiments.*

5 Minutes break

15:05 - 15:30 Lucia Hackermuller *Experimental limits of massive BECs – are they suitable candidates to probe Quantum gravity?*

15:30 - 16:00 Panel Discussion (20 min)/Coffee break (10 min)

[ Chair: Gary Steele, Ivette Fuentes ]

16:00 - 16:25 Alex Grinin *Towards matter-wave interferometry with virus-sized objects*.  
- 16:25 - 16:50 Oriol Romero-Isart *Towards Large Quantum Delocalization of a Nanoparticle*

5 Minutes break

16:55 - 17:25 Christian Panda *Probing gravity with trapped atoms: the optical lattice atom interferometer*

17:25 - 18:25 Panel Discussion [Lead by Gary Steele, Hendrik Ulbricht, Ryan Marshman, Ivette Fuentes]

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Friday [ Chair: Ron Folman, Marko Toros ]

14:00 - 14:10 Summary presentation of the forth day meeting

14:10 - 14:35 Gerard Milburn *Photonic tests of gravitational decoherence*
14:35 - 15:00 Dirk Boumeester  
5 Minutes break

15:05 - 15:30 Yue Ma *Limits on inference of gravitational entanglement*

15:30 - 16:00 Panel Discussion (20 min)/Coffee break (10 min)
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16:00 - 16:10 Martin Plenio
16:10 - 16:20 Myungshik Kim
16:20 - 16:30 Sougato Bose
16:30 - 16:40 Anupam Mazumdar