

Thursday 28 September

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- 8:45 - 9:00 Registration (*Pavillon du Mail*)
9:00 - 9:05 Opening address & Organization of the workshop
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Session 1 “Single photon measurements, radiometry with entangled sources, superconducting particle detectors”
Chair: Dr Maria Luisa Rastello, INRIM (Italy)

- 9:05 - 9:40 *Quantum optical metrology by photons*
Dr Maria Luisa Rastello, INRIM (Italy)
- 9:40 - 10:10 *A single-emitter sub-shot noise quantum light source: press a button and get one photon*
Prof. Dr Stephan Götzinger, Max Planck Institute for the Science of Light (Germany)
- 10:10 - 10:40 *Quantum imaging: challenges and perspectives in radiometry and biophotonics*
Dr Ivano Ruo Berchera, INRIM (Italy)
- 10:40 - 11:20 *Tea / Coffee break (Tent in the garden)*
- 11:20 - 11:50 *Predictable single photon source with variable photon flux*
Prof. Erkki Ikonen, VTT MIKES & Aalto University (Finland)
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Session 2 “Quantum standards for mass, pressure vacuum, temperature, acoustics and vibration”
Chair: Dr Carl Williams, NIST/JQI

- 11:50 - 12:25 *The next generation of metrology – NIST Quantum SI*
Dr Gregory F. Strouse, NIST (United States)
- 12:25 - 12:55 *Coherent caloritronics in superconducting circuits: from heat interferometers to $0-\pi$ controllable thermal Josephson junctions.*
Dr Federico Paolucci, NEST (Italy)
- 12:55 - 13:55 *Lunch (Tent in the garden)*
- 13:55 - 14:25 *Putting the quantum into mechanics: Quantum standards for mass and force*
Dr Stephan Schlaminger, NIST (United States)
- 14:25 - 14:55 *Quantum absolute sensors for gravity measurements*
Dr Sébastien Merlet, LNE-SYRTE (France)
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Session 3 “Highly entangled systems for metrology, entangled optical clocks”
Chair: Prof. Patrick Gill, NPL

- 14:55 - 15:30 *Atomic clocks, superpositions and entanglement*
Prof. Patrick Gill, NPL (United Kingdom)
- 15:30 - 16:10 *Tea / Coffee break (Tent in the garden)*
- 16:10 - 16:40 *Optical clocks with single ions*
Dr Ekkehard Peik, PTB (Germany)
- 16:40 - 17:10 *Optical clock protocols for Heisenberg-limited stability*
Dr David R. Leibbrandt, NIST (United States)
- 17:10 - 17:40 *Non-destructive detection for strontium optical lattice clocks: towards a lattice clock in the quantum regime*
Dr Jérôme Lodewyck, LNE-SYRTE (France)
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- 17:40 - 19:00 Posters of sessions 1, 2 and 3 (*Pavillon de Breteuil*) / *Reception (Tent in the garden)*
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Friday 29 September

Session 4 “Advances in quantum electrical standards, single electron transistors and demonstrations of the “quantum metrology triangle”

Chair: Dr Uwe Siegner, PTB (Germany)

- 8:30 - 9:05 *Electrical quantum standards: foundation of electrical units and measurements*
Dr Uwe Siegner, PTB (Germany)
- 9:05 - 9:35 *Practical quantum current standard: performances and perspectives*
Dr Wilfrid Poirier, LNE (France)
- 9:35 - 10:05 *GaAs based single electron pumps for electrical quantum metrology*
Dr Hans Werner Schumacher, PTB (Germany)
- 10:05 - 10:45 *Tea / Coffee break (Tent in the garden)*
- 10:45 - 11:15 *Stable and tunable carrier density control of epitaxial graphene for quantum metrology*
Dr Hans He, Chalmers University of Technology (Sweden)

11:15 - 12:45 **Posters of sessions 4 and 5 (Pavillon de Breteuil)**

12:45 - 13:45 *Lunch (Tent in the garden)*

Session 5 “Beyond quantum metrology”

Chair: Dr Sang-Kyung Choi, KRISS (Republic of Korea)

- 13:45 - 14:20 *From quantum interference to human perception*
Prof. Kiwoong Kim, KRISS (Republic of Korea)
- 14:20 - 14:50 *New approaches for sensitivity and spectral resolution improvement in diamond quantum metrology*
Prof. Dr Fedor Jelezko, Ulm University (Germany)
- 14:50 - 15:20 *Nanomechanical oscillators in the single-phonon regime*
Dr Junho Suh, KRISS (Republic of Korea)
- 15:20 - 15:50 *Quantum optical explorations of the nanoscale metrology frontier*
Prof. Jacob Taylor, NIST/JQI (United States)
- 15:50 - 16:20 *NanoSQUIDs for quantum metrology*
Prof. Ling Hao, NPL (United Kingdom)

16:20 **Closure of the Workshop**
