

## Matteo G. A. Paris

### CURRICULUM VITAE

Full professor of quantum information at the physics department *Aldo Pontremoli* of the University of Milan, where he heads the Quantum Technology Lab.

**Presentation:** Matteo G A Paris is full professor at the Department of Physics, University of Milano, where he founded and lead the Pure and Applied Quantum Mechanics research group (<http://sites.unimi.it/aqm>), composed by about fifteen persons, carrying on theoretical and experimental research on quantum technology, quantum optics and foundations of quantum mechanics. He got his Ph.D. at the University of Pavia, and then was a post-doc in the group "Nichtklassische Strahlung" of the Max-Planck-Society (Berlin). Before joining UniMi in 2004, he was research fellow of the University of Pavia and research associate of the National Institute for the Physics of Matter (INFM). He is a theoretician working in close collaborations with experimentalists on quantum information & technology, quantum optics, open quantum systems and foundations of quantum mechanics. In these fields he is author of 350+ publications on international journals, which received 15000+ citations, with about 70 invited talks and seminars; his H-index is currently 61 (Google scholar). His main contributions are in the fields of quantum estimation of states and operations, generation and application of quantum correlations, quantum information processing, quantum walks and algorithms, open quantum systems, quantum metrology and high-precision measurements. In the recent years, he is mostly working in quantum sensing and metrology, continuous variable quantum technology, and quantum walks. He is also active in seeking for novel degrees of freedom for quantum technology, and to improve metrological protocols in the search of new physics.

Since 2008 he is active in the experimental implementation of quantum technologies. Currently the lab is competitive in the field of discrete variable, implemented with polarization qubits, as well as with continuous variables squeezing and entanglement. Some relevant publications

- S. Cialdi, E. Suerra, S. Olivares, S. Capra, and M. G. A. Paris, *Squeezing phase diffusion*, Phys. Rev. Lett. **124**, 163601 (2020).
- L. Garbe, M. Bina, A.Keller, M. G. A. Paris, and S. Felicetti, *Critical Quantum metrology with a finite-component quantum phase transition*, Phys. Rev. Lett. **124**, 120504 (2020).
- D. Tamascelli, C. Benedetti, H.P. Breuer, M.G.A. Paris, *Quantum probing beyond pure dephasing*, New J. Phys. **22**, 083027 (2020).
- F. Troiani, M. G. A. Paris, *Universal quantum magnetometry with spin states at equilibrium*, Phys. Rev. Lett. **120**, 260503 (2018).
- A. A. Berni, T. Gehring, B. M. Nielsen, V. Handchen, M. G. A. Paris, U. L. Andersen, *Ab initio quantum-enhanced optical phase estimation using real-time feedback control*, Nature Phot. **9**, 577 (2015) .
- F. Galve, F. Plastina, M. G. A. Paris, R. Zambrini, *Discording Power of Quantum Evolutions*, Phys. Rev. Lett. **110**, 010501 (2013).
- R. Blandino, M. G. Genoni, J. Etesse, M. Barbieri, M. G. A. Paris, P. Grangier, R. Tualle-Brouiri *Homodyne estimation of Gaussian Quantum Discord* Phys. Rev. Lett **109**, 180402 (2012).
- A. Ferraro, M. G. A. Paris, *Nonclassicality criteria from phase-space representations and information-theoretical constraints are maximally inequivalent* Phys. Rev. Lett **108**, 260403 (2012).
- G. Brida, L. Ciavarella, I. P. Degiovanni, M. Genovese, A. Migdall, M. G. Mingolla, M. G. A. Paris, F. Piacentini, S. V. Polyakov, *Ancilla-Assisted Calibration of a Measuring Apparatus*, Phys. Rev. Lett. **108**, 253601 (2012).

**Awards:** For "...his personal contributions to Quantum Optics." Matteo Paris received the G. Borgia award from the National Academy of Science ("Accademia dei Lincei"). He was also awarded the Francesco Somaini medal for young physicists.

**Teaching:** MGAP taught General Physics to engineering students from 2000 to 2004. From 2004 he teaches General Physics to Biology students (from 2013 to Chemistry students) and Quantum Information to Physics students. From 2011 he also teaches Quantum Optics. Since 2004 MGAP has been the supervisor of about 35 BA thesis, 40 Master thesis, 12 PhD thesis, and 15 post-docs.

**Admin:** MGAP is the director of the PhD school in Physics, he is a member of the department council and of the outreach committee. He is the coordinator of the Milano Unit of the ERA-PILOT European network and had been the local coordinator of the italian physics of matter CNISM consortium (and the delegate of the Dean in the consortium).

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