

# Curriculum Vitae: Cosmo LUPO

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## Current and previous employment

- 2021 – Associate Professor of Theoretical Physics. Politecnico di Bari (Italy).
- 2018 – 2021: Research Associate. Department of Physics and Astronomy, University of Sheffield (UK).
- 2018 – 2021: Analyst: Operational Research. Department for Work & Pensions, Government of the United Kingdom.
- 2016 - 2018: Research Associate. Department of Computer Science, University of York (UK).
- 2012 – 2015: Postdoctoral Associate and MIT-SUTD Graduate Fellow. Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge MA (USA).
- 2008 – 2012: Postdoc/Assegnista di ricerca. School of Science and Technology, University of Camerino, Camerino (Italy).
- 2007 – 2008: Marie Curie Postdoc, Research Center for Quantum Information (RCQI), Slovak Academy of Science, Bratislava (Slovak Republic).

## Education and training

- 2018: [Research Leaders programme](#). University of York.
- 2015: [Kaufman Teaching Certificate](#). Massachusetts Institute of Technology.
- 2004 – 2007: Ph.D. in Fundamental and Applied Physics. University of Napoli 'Federico II', Napoli, Italy.
- 1998 – 2004: Laurea in Physics (five-year degree) 110/110 summa cum laude. University of Napoli 'Federico II', Napoli, Italy.

## Research funding obtained

- 2020: co-PI, partership resource project QuID (Entanglement-Based Tokens for Quantum PIN Identification), Quantum Communications Hub, EPSRC (value: 200,000 GBP).
- 2015: MIT-SUTD Graduate Fellow Program (value: 144,000 US\$).

## Inventions

2017 J. C. Mower, J. Notaros, M. Heuck, D. R. Englund, [C. Lupo](#), S. Lloyd  
Apparatus and methods for locked quantum communication using photonic integrated circuits. Pub. No.: US 2017 / 0293082 A1

## Industrial engagement

2016 – 19: Member of Qubiz – Technology Incubator, Innovation Fund Denmark.

## Public engagement

2018: Stakeholder (subject expert), [EPSRC public dialogue on Quantum Technologies](#).

## Teaching

2022 – General physics, Politecnico di Bari.

2020: Accademic tutor: Classical Mechanics, Electromagnetism. Department of Physics and Astrophysics, University of Sheffield.

2019, 2020: Module leader (responsible for design, delivery, and assessment). The physics of sustainable energies. Department of Physics and Astrophysics, University of Sheffield.

2017: Guest Lecturer. Cryptography Theory & Applications. Department of Computer Science, University of York.

2015: Instructor. Physics 802: Electricity and Magnetism. Experimental Study Group, MIT, Cambridge MA.

2014: Teaching assistant. Physics 801: Classical Mechanics. Experimental Study Group, MIT, Cambridge MA.

2011, 2012: Instructor. Classical and quantum information theory. University of Camerino.

2010: Tutor. General Physics, for undergraduate students in physics, mathematics and computer science. University of Camerino.

## Awards

2021: “Quantum hypothesis testing for exoplanet detection” highlighted as Editors's suggestion in [Phys. Rev. Lett.](#)

“Resource-efficient energy test and parameter estimation in continuous-variable quantum key distribution” highlighted as Editors's suggestion in [Phys. Rev. A](#).

2019: Teaching excellence in early-career staff, awarded by the Head of Department of Physics and Astronomy, University of Sheffield.

2018: Making the Difference Award, by the Head of the Department of Computer Science of the University of York.

- 2016: “Ultimate precision limits of quantum and sub-Rayleigh imaging” highlighted as Editors's suggestion in [Phys. Rev. Lett.](#)
- “A Quantum Enigma Machine: Experimentally Demonstrating Quantum Data Locking” highlighted as Editors's suggestion by [Phys. Rev. A.](#)
- 2011: “Quantum reading capacity” included in the list of [Highlights of 2011](#) for the section Quantum Physics in New Journal of Physics.

### Professional activity

Grant reviewer for: Natural Sciences and Engineering Research Council of Canada (NSERC); National Science Centre, Poland; Italian Ministry of Education, Universities and Research (MIUR).

### Publications

I am author of 70 articles published in peer-reviewed journals. They have been cited more than 2000 times, h-factor is 23 according to [Google Scholar](#).

#### 5 selected publications

1. Z. Huang, C. Lupo  
Quantum hypothesis testing for exoplanet detection  
[Phys. Rev. Lett. 127, 130502 \(2021\)](#) [Editors' suggestion]
2. C. Lupo, T. Gehring, A. Kordts, D. Solar Nikolic, N. Jain, T. Rydberg, T. B. Pedersen, S. Pirandola, U. L. Andersen  
Homodyne-based quantum random number generator at 2.9 Gbps secure against quantum side-information  
[Nat. Commun. 12, 605 \(2021\)](#)
3. C. Lupo, C. Ottaviani, P. Papanastasiou, S. Pirandola  
Continuous-variable measurement-device-independent quantum key distribution: Composable security against coherent attacks  
[Phys. Rev. A 97, 052327 \(2018\)](#)
4. C. Lupo, S. Pirandola  
Ultimate precision limits of quantum and sub-Rayleigh imaging  
[Phys. Rev. Lett. 117, 190802 \(2016\)](#) [Editors' suggestion]
5. C. Lupo, S. Lloyd  
Quantum-Locked Key Distribution at Nearly the Classical Capacity Rate  
[Phys. Rev. Lett. 113, 160502 \(2014\)](#)