

Davide Calonico

Davide Calonico is an internationally renowned Italian quantum physicist and metrologist. Since 2025, he has served as the Scientific Director of INRiM (National Institute of Metrological Research) in Turin. His breakthrough research focuses on primary time metrology, quantum communications, and advanced sensing, notably utilizing transoceanic fiber-optic cables for environmental monitoring. Calonico plays a leading role as Coordinator and Principal Investigator for PiQuET, a cutting-edge infrastructure accelerating the development of quantum sensors and micro-devices. Furthermore, he coordinates the European QUID project to deploy Italy's quantum communication network. Alongside his research, he is an adjunct professor at the Politecnico di Torino, where he teaches "Labs of Quantum Technologies" and supervises PhD students.

Davide Calonico

Quantum Physicist, Metrologist, and Scientific Director of INRiM

Professional Profile

Davide Calonico is an internationally recognized Italian quantum physicist and metrologist. Since 2025, he has served as the **Scientific Director** of **INRiM** (National Institute of Metrological Research) in Turin for the 2025–2030 five-year term.

Prior to this role, he headed the "Quantum Metrology and Nanotechnologies" Research Division within the same institute, where he coordinated research activities focused on ultra-precise time measurement and technological transfer related to quantum physics.

Research Fields and Scientific Contributions

His scientific activity primarily focuses on **quantum metrology**, **advanced sensing**, and **quantum communications**. His main contributions and areas of expertise include:

- **Primary Time Metrology:** He has worked extensively on developing advanced atomic clocks based on gas atoms cooled via laser techniques: a so-called “atomic fountain” based on Caesium atoms, an optical clock based on laser cooled Ytterbium atoms, and on based on Strontium atoms.
- **Quantum Infrastructure and Fiber Optics:** He has been the international coordinator of the European **QUID** (*Quantum Italy Deployment*) project, aimed at developing the Italian segment of the European Quantum Communication Infrastructure, EuroQCI. He has also closely overseen the development of the *Italian Quantum Backbone*, the national fiber-optic research infrastructure for metrology.
- **Environmental and Oceanic Sensors:** He has participated in pioneering research (published in prestigious scientific journals such as *Science* and *Nature Physics*) aimed at using telecommunication fiber-optic networks and transoceanic submarine cables as massive sensor arrays for seismic and environmental monitoring (*proactive sensing*).

Leadership in PiQuET (Piemonte Quantum Enabling Technologies)

Davide Calonico plays a leading role in the establishment and scientific coordination of **PiQuET** (*Piemonte Quantum Enabling Technology*), a cutting-edge applied research infrastructure based in Turin, to develop nanotechnologies (also) for quantum technologies. Co-funded by the Piedmont

Region, the infrastructure is led by INRiM in close synergy with the Politecnico di Torino and the University of Turin.

- **Research Coordinator and Promoter:** Calonico serves as the **INRiM Coordinator** within the project. He was part of the select panel of scientists responsible for the initial scientific design of the infrastructure and the technical committee overseeing laboratory setup.
- **Technological Development (Clean Room):** Under his scientific supervision, PiQuET developed a major **Clean Room** of approximately 400–500 square meters (ISO5 and ISO6 certified), dedicated to the design, advanced fabrication, and characterization of micro/nano-devices and quantum sensors.
- **PiQuET+ Project:** Calonico is the **Principal Investigator (PI)** for INRiM in the expansion and upgrade project known as **PiQuET+**, which ranked at the top of funding lists for public research infrastructures.
- **Technology Transfer Mission:** Under his leadership, the infrastructure's primary goal is to bridge the gap between fundamental physics research and the industrial sector, fostering a local supply chain for quantum technologies in secure communications, precision metrology, and environmental sensing.

Academic and Teaching Activities

Alongside his research endeavors, Davide Calonico is highly active in the academic world. He earned his PhD from the **Politecnico di Torino**, an institution with which he maintains a close collaboration as an adjunct professor and educational collaborator for the Department of Applied Science and Technology (DISAT).

At the Politecnico di Torino, he teaches the Master's level course "**Labs of Quantum Technologies**" within the *Quantum Engineering* program and serves as a PhD supervisor in the field of materials science and technology.

Publications

Bibliometric Overview (Full Collection):

- **Total Citations:** ~7,000 (Google Scholar) / ~1,600+ (Scopus)
- **H-Index:** 42 (Google Scholar) / 21 (Scopus)
- **i10-Index:** 80 (Papers with at least 10 citations)
- **Total Publications:** Over 120 peer-reviewed scientific papers, conference proceedings, and book chapters.

Bibliometric Overview (Only Peer Review International Papers):

- **Source: WoS – Web of Science**

April 2026; Timespan: 2002-2026.

Results found (papers on international peer reviewed journals): 79

Times Cited Total 3.861

Times Cited Without self-citations. 3.582

Average per item. 48,87

h-index 31

- **Some other Key Performance Indicators (Source: Scopus)**

FWCI - Field-Weighted Citation Impact (FWCI). FWCI is a Scopus-exclusive, bibliometric indicator measuring the citation impact of research publications relative to the world average, normalized for

subject field, document type, and publication year. A score of 1.00 represents global average performance, while >1.00 indicates above-average citation impact.

- From Source: Scopus, it is evident that as Last author – meanings Leadership within the work – Davide Calonico FWCI is 1,42 suggesting a performance higher than average at 42% level.
- For the overall production, FWCI of DC is 1,22, suggesting an overall performance in career 22% better than average of his area. 22,9% of the published papers are in the top 25% top cited works worldwide.

Core & High-Impact Publications:

These publications reflect his main breakthroughs in transoceanic sensing, optical fiber networks, and atomic clocks:

1. Environmental Sensing via Undersea Cables

Marra, G., Fairweather, D. M., Kamalov, V., ..., Calonico, D., et al. “Optical interferometry–based array of seafloor environmental sensors using a transoceanic submarine cable” *Science* (2022) | Vol. 376, pp. 874–879

- **Impact:** A landmark collaborative study showing how global underwater telecom cables can be converted into giant acoustic and seismic sensor arrays for real-time ocean floor monitoring.

2. Intercontinental Quantum & Atomic Clock Synchronization

Pizzocaro, M., Sekido, M., Takefuji, K., ..., Calonico, D., et al. “Intercontinental comparison of optical atomic clocks through very long baseline interferometry” *Nature Physics* (2021) | Vol. 17, pp. 223–227

- **Impact:** This research demonstrated the ability to cross-compare ultrasensitive optical atomic clocks between Europe and Asia using geodetic radio telescopes.

3. Optical Clocks and Geodesy

Grotti, J., Koller, S., Vogt, S., ..., Calonico, D., et al. “Geodesy and metrology with a transportable optical clock” *Nature Physics* (2018) | Vol. 14, pp. 437–441

- **Impact:** Proved that a mobile strontium optical clock could measure relativistic gravity shifts (gravitational redshift) out in the field, paving the way for chronometric geodesy.

4. International Infrastructure and Fiber Comparisons

Lindvall, T., Pizzocaro, M., Godun, R. M., ..., Calonico, D., et al. “Coordinated international comparisons between optical clocks connected via fiber and satellite links” *Optica* (2025) | Vol. 12, pp. 843–852

- **Impact:** Evaluated the performance of the latest pan-European fiber network links in relaying time signals between primary national metrology institutes (including INRiM).

5. Real-World Seismic Monitoring

Donadello, S., Clivati, C., Govoni, A., ..., Calonico, D. “Seismic monitoring using the telecom fiber network” *Communications Earth & Environment* (2024) | Vol. 5, Art. 178

- **Impact:** Showed the immediate practical feasibility of using regular, terrestrial commercial fiber networks as passive distributed seismic sensors.

6. Quantum Communication innovative protocols

Clivati, C, et al., and Calonico D., “Coherent phase transfer for real-world twin-field quantum key distribution” Nat. Commun. (2022), DOI:10.1038/s41467-021-27808-1

- **Impact:** Demonstrated in real field the protocol Twin Field Quantum Key Distribution with optimesd control of phase noise using metrological optical techniques.

Publications on Peer Reviewed Journals – Ordered for Citations

Num	Authors	Article Title	Journal	Times Cited	Publication Year	DOI
1	Grotti, J et al.	Geodesy and metrology with a transportable optical clock	Nat. Phys.	461	2018	10.1038/s41567-017-0042-3
2	Marra, G et al.	Ultrastable laser interferometry for earthquake detection with terrestrial and submarine cables	Science	348	2018	10.1126/science.aat4458
3	Marion, H et al.	Search for variations of fundamental constants using atomic fountain clocks - art. no. 150801	Phys. Rev. Lett.	279	2003	10.1103/PhysRevLett.90.150801
4	Livi, LF et al.	Synthetic Dimensions and Spin-Orbit Coupling with an Optical Clock Transition	Phys. Rev. Lett.	270	2016	10.1103/PhysRevLett.117.220401
5	Bauch, A et al.	Comparison between frequency standards in Europe and the USA at the 10-15 uncertainty level	Metrologia	216	2006	10.1088/0026-1394/43/1/016
6	Calonico, D et al.	High-accuracy coherent optical frequency transfer over a doubled 642-km fiber link	Appl. Phys. B-Lasers Opt.	164	2014	10.1007/s00340-014-5917-8
7	Cappellini, G et al.	Direct Observation of Coherent Interorbital Spin-Exchange Dynamics	Phys. Rev. Lett.	159	2014	10.1103/PhysRevLett.113.120402
8	Marra, G et al.	Optical interferometry-based array of seafloor environmental sensors using a transoceanic submarine cable	Science	150	2022	10.1126/science.abo1939
9	Levi, F et al.	Accuracy evaluation of ITCsF2: a nitrogen cooled caesium fountain	Metrologia	137	2014	10.1088/0026-1394/51/3/270
10	Wengerowsky, S et al.	Entanglement distribution over a 96-km-long submarine optical fiber	Proc. Natl. Acad. Sci. U. S. A.	136	2019	10.1073/pnas.1818752116
11	Bolognesi, G et al.	Yellow laser performance of Dy ³⁺ in co-doped Dy,Tb:LiLuF ₄	Opt. Lett.	132	2014	10.1364/OL.39.006628
12	Clivati, C et al.	Coherent phase transfer for real-world twin-field quantum key distribution	Nat. Commun.	109	2022	10.1038/s41467-021-27808-1
13	Clivati, C et al.	A VLBI experiment using a remote atomic clock via a coherent fibre link	Sci Rep	106	2017	10.1038/srep40992
14	Calosso, CE et al.	Frequency transfer via a two-way optical phase comparison on a multiplexed fiber network	Opt. Lett.	88	2014	10.1364/OL.39.001177
15	Clivati, C et al.	Common-clock very long baseline interferometry using a coherent optical fiber link	Optica	84	2020	10.1364/OPTICA.393356

16	Wengerowsky, S et al.	Passively stable distribution of polarisation entanglement over 192 km of deployed optical fibre	npj Quantum Inform.	70	2020	10.1038/s41534-019-0238-8
17	Pizzocaro, M et al.	Absolute frequency measurement of the $1S_0 - 3P_0$ transition of ^{171}Yb	Metrologia	66	2017	10.1088/1681-7575/aa4e62
18	Pizzocaro, M et al.	Absolute frequency measurement of the $1S_0 - 3P_0$ transition of ^{171}Yb with a link to international atomic time	Metrologia	62	2020	10.1088/1681-7575/ab50e8
19	Pizzocaro, M et al.	Intercontinental comparison of optical atomic clocks through very long baseline interferometry	Nat. Phys.	59	2021	10.1038/s41567-020-01038-6
20	Bacco, D et al.	Field trial of a three-state quantum key distribution scheme in the Florence metropolitan area	EPJ Quantum Technol.	53	2019	10.1140/epjqt/s40507-019-0075-x
21	Levi, F et al.	IEN-CsF1 primary frequency standard at INRIM: accuracy evaluation and TAI calibrations	Metrologia	49	2006	10.1088/0026-1394/43/6/010
22	Clivati, C et al.	Planar-Waveguide External Cavity Laser Stabilization for an Optical Link With 10-19 Frequency Stability	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	45	2011	10.1109/TUFFC.2011.2121
23	Clivati, C et al.	Optical frequency transfer over submarine fiber links	Optica	43	2018	10.1364/OPTICA.5.000893
24	Clivati, C et al.	Large-area fiber-optic gyroscope on a multiplexed fiber network	Opt. Lett.	42	2013	10.1364/OL.38.001092
25	Riedel, F et al.	Direct comparisons of European primary and secondary frequency standards via satellite techniques	Metrologia	37	2020	10.1088/1681-7575/ab6745
26	Pizzocaro, M et al.	Efficient frequency doubling at 399 nm	Appl. Optics	37	2014	10.1364/AO.53.003388
27	Barbiero, M et al.	Sideband-Enhanced Cold Atomic Source for Optical Clocks	Phys. Rev. Appl.	35	2020	10.1103/PhysRevApplied.13.014013
28	Santamaria, L et al.	Comb-assisted cavity ring-down spectroscopy of a buffer-gas-cooled molecular beam	Phys. Chem. Chem. Phys.	34	2016	10.1039/c6cp02163h
29	Clivati, C et al.	Measuring absolute frequencies beyond the GPS limit via long-haul optical frequency dissemination	Opt. Express	34	2016	10.1364/OE.24.011865
30	Jefferts, SR et al.	High-Accuracy Measurement of the Blackbody Radiation Frequency Shift of the Ground-State Hyperfine Transition in ^{133}Cs	Phys. Rev. Lett.	34	2014	10.1103/PhysRevLett.112.050801
31	Clivati, C et al.	A Coherent Fiber Link for Very Long Baseline Interferometry	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	33	2015	10.1109/TUFFC.2015.007221
32	Pizzocaro, M et al.	Realization of an Ultrastable 578-nm Laser for an Yb Lattice Clock	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	33	2012	10.1109/TUFFC.2012.2211
33	Shirley, JH et al.	Microwave leakage-induced frequency shifts in the primary frequency standards NIST-F1 and IEN-CSF1	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	32	2006	10.1109/TUFFC.2006.186

34	Battelier, B et al.	Exploring the foundations of the physical universe with space tests of the equivalence principle	Exp. Astron.	31	2021	10.1007/s10686-021-09718-8
35	Husmann, D et al.	SI-traceable frequency dissemination at 1572.06 nm in a stabilized fiber network with ring topology	Opt. Express	31	2021	10.1364/OE.427921
36	Milani, G et al.	Multiple wavelength stabilization on a single optical cavity using the offset sideband locking technique	Opt. Lett.	30	2017	10.1364/OL.42.001970
37	Levi, F et al.	Measurement of the blackbody radiation shift of the 133Cs hyperfine transition in an atomic fountain - art. no. 033412	Phys. Rev. A	30	2004	10.1103/PhysRevA.70.033412
38	Levi, F et al.	IEN-CsF1 accuracy evaluation and two-way frequency comparison	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	29	2004	10.1109/TUFFC.2004.1350948
39	Insero, G et al.	Measuring molecular frequencies in the 1-10 μm range at 11-digits accuracy	Sci Rep	27	2017	10.1038/s41598-017-12891-6
40	Micalizio, S et al.	Blackbody radiation shift of the 133Cs hyperfine transition frequency - art. no. 053401	Phys. Rev. A	27	2004	10.1103/PhysRevA.69.053401
41	Ertmer, W et al.	Matter wave explorer of gravity (MWXG)	Exp. Astron.	26	2009	10.1007/s10686-008-9125-6
42	Levi, F et al.	Systematic shift uncertainty evaluation of IEN CSF1 primary frequency standard	IEEE Trans. Instrum. Meas.	26	2003	10.1109/TIM.2003.811684
43	Godone, A et al.	Stark-shift measurement of the 2S _{1/2} , F=3 $\rightarrow$ F=4 hyperfine transition of 133Cs - art. no. 063401	Phys. Rev. A	25	2005	10.1103/PhysRevA.71.063401
44	Clivati, C et al.	Coherent Optical-Fiber Link Across Italy and France	Phys. Rev. Appl.	24	2022	10.1103/PhysRevApplied.18.054009
45	Clivati, C et al.	Distributed Raman Optical Amplification in Phase Coherent Transfer of Optical Frequencies	IEEE Photonics Technol. Lett.	23	2013	10.1109/LPT.2013.2273269
46	Levi, F et al.	Cryogenic Fountain Development at NIST and INRIM: Preliminary Characterization	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	22	2010	10.1109/TUFFC.2010.1453
47	Donadello, S et al.	Seismic monitoring using the telecom fiber network	Commun. Earth Environ.	20	2024	10.1038/s43247-024-01338-2
48	Calosso, CE et al.	Doppler-stabilized fiber link with 6 dB noise improvement below the classical limit	Opt. Lett.	20	2015	10.1364/OL.40.000131
49	De Regis, M et al.	Room-Temperature Continuous-Wave Frequency-Referenced Spectrometer up to 7.5 THz	Phys. Rev. Appl.	19	2018	10.1103/PhysRevApplied.10.064041
50	Calonico, D et al.	Gravitational redshift at INRIM	Metrologia	19	2007	10.1088/0026-1394/44/5/N03
51	Pizzocaro, M et al.	Active Disturbance Rejection Control of Temperature for Ultrastable Optical Cavities	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	18	2013	10.1109/TUFFC.2013.2563

52	Goti, I et al.	Absolute frequency measurement of a Yb optical clock at the limit of the Cs fountain	Metrologia	15	2023	10.1088/1681-7575/accbc5
53	Barbieri, P et al.	Spectral purity transfer with 5 x 10 ⁻¹⁷ instability at 1 s using a multibranch Er: fiber frequency comb	Metrologia	15	2019	10.1088/1681-7575/ab2b0f
54	Calonico, D et al.	Bayesian inference of a negative quantity from positive measurement results	Metrologia	14	2009	10.1088/0026-1394/46/3/014
55	Barbiero, M et al.	Optically Loaded Strontium Lattice Clock With a Single Multi-Wavelength Reference Cavity	IEEE Trans. Instrum. Meas.	13	2022	10.1109/TIM.2022.3165292
56	Clivati, C et al.	Robust optical frequency dissemination with a dual-polarization coherent receiver	Opt. Express	13	2020	10.1364/OE.378602
57	Calonico, D et al.	Light and the distribution of time	EPL	13	2015	10.1209/0295-5075/110/40001
58	Barbiero, M et al.	Broadband serrodyne phase modulation for optical frequency standards and spectral purity transfer	Opt. Lett.	9	2023	10.1364/OL.485064
59	Rauf, B et al.	Phase noise cancellation in polarisation-maintaining fibre links	Rev. Sci. Instrum.	9	2018	10.1063/1.5016514
60	Bertaina, G et al.	Phase Noise in Real-World Twin-Field Quantum Key Distribution	Adv. Quantum Technol.	8	2024	10.1002/qute.202400032
61	Donadello, S et al.	Embedded Digital Phase Noise Analyzer for Optical Frequency Metrology	IEEE Trans. Instrum. Meas.	8	2023	10.1109/TIM.2023.3288255
62	Formichella, V et al.	Year-long optical time scale with sub-nanosecond capabilities	Optica	7	2022	10.1364/OPTICA.509706
63	Sekido, M et al.	A broadband VLBI system using transportable stations for geodesy and metrology: an alternative approach to the VGOS concept	J. Geodesy	7	2021	10.1007/s00190-021-01479-8
64	Lindvall, T et al.	Coordinated international comparisons between optical clocks connected via fiber and satellite links	Optica	6	2025	10.1364/OPTICA.561754
65	Clivati, C et al.	In-field Raman amplification on coherent optical fiber links for frequency metrology	Opt. Express	6	2015	10.1364/OE.23.010604
66	Bacco, D et al.	Toward Fully-Fledged Quantum and Classical Communication Over Deployed Fiber with Up-Conversion Module	Adv. Quantum Technol.	5	2021	10.1002/qute.202000156
67	Tampellini, A et al.	Effect of a timebase mismatch in two-way optical frequency transfer	Metrologia	5	2017	10.1088/1681-7575/aa8a41
68	Risaro, M et al.	Improving the Resolution of Comb-Based Frequency Measurements Using a Track-And-Hold Amplifier	Phys. Rev. Appl.	4	2022	10.1103/PhysRevApplied.18.064010
69	Adenier, G et al.	Realization of a twin beam source based on four-wave mixing in Cesium	Int. J. Quantum Inf.	4	2016	10.1142/S0219749916400141
70	Meda, A et al.	QKD protected fiber-based infrastructure for time dissemination	Sci Rep	2	2025	10.1038/s41598-025-97480-8
71	Calonico, D et al.	Bayesian estimate of the zero-density frequency of a Cs fountain	Metrologia	2	2009	10.1088/0026-1394/46/6/004

72	Vian, C et al.	The BNM-SYRTE fountain clock - Recent results	J. Phys. IV	2	2004	10.1051/jp4:2004119099
73	Savio, P et al.	Optical-Comb-Based Frequency Stability Transfer Across the Spectrum With a Multichannel FPGA	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	1	2025	10.1109/TUFFC.2025.3526761
74	Cerrato, E et al.	Erbium-Doped LiYF ₄ as a Potential Solid-State Frequency Reference: Eligibility and Spectroscopic Assessment	Crystals	1	2023	10.3390/cryst13101476
75	Negusini, M et al.	A High-frequency Geodetic VLBI Experiment for Optical Clock Comparison	Publ. Astron. Soc. Pac.	0	2026	10.1088/1538-3873/ae36d1
76	Altilia, S et al.	Smart grid fibers for quantum communication and sensing	Int. J. Quantum Inf.	0	2026	10.1142/S0219749925400106
77	Gozzelino, M et al.	Activation and characterization of Rb MEMS cells with an automatic system at wafer level	Sens. Actuator A-Phys.	0	2025	10.1016/j.sna.2025.116621
78	Barbiero, M et al.	Composite Raman-Nath heterodyne interferometry with relevance for precise spectroscopy	Opt. Laser Technol.	0	2025	10.1016/j.optlastec.2024.111613
79	D'Ambrosio, D et al.	A QCL-based metrological-grade source at 6 μm	Appl. Phys. B-Lasers Opt.	0	2020	10.1007/s00340-020-7388-4

• Publications – Ordered from Newest to Oldest

Num.	Authors	Article Title	Journal	Times Cited	Publication Year	DOI
1	Negusini, M et al.	A High-frequency Geodetic VLBI Experiment for Optical Clock Comparison	Publ. Astron. Soc. Pac.	0	2026	10.1088/1538-3873/ae36d1
2	Altilia, S et al.	Smart grid fibers for quantum communication and sensing	Int. J. Quantum Inf.	0	2026	10.1142/S0219749925400106
3	Lindvall, T et al.	Coordinated international comparisons between optical clocks connected via fiber and satellite links	Optica	6	2025	10.1364/OPTICA.561754
4	Gozzelino, M et al.	Activation and characterization of Rb MEMS cells with an automatic system at wafer level	Sens. Actuator A-Phys.	0	2025	10.1016/j.sna.2025.116621
5	Meda, A et al.	QKD protected fiber-based infrastructure for time dissemination	Sci Rep	2	2025	10.1038/s41598-025-97480-8
6	Savio, P et al.	Optical-Comb-Based Frequency Stability Transfer Across the Spectrum With a Multichannel FPGA	IEEE Trans. Ultrason. Ferroelectr. Freq. Control	1	2025	10.1109/TUFFC.2025.3526761
7	Barbiero, M et al.	Composite Raman-Nath heterodyne interferometry with relevance for precise spectroscopy	Opt. Laser Technol.	0	2025	10.1016/j.optlastec.2024.111613
8	Bertaina, G et al.	Phase Noise in Real-World Twin-Field Quantum Key Distribution	Adv. Quantum Technol.	8	2024	10.1002/qute.202400032
9	Donadello, S et al.	Seismic monitoring using the telecom fiber network	Commun. Earth Environ.	20	2024	10.1038/s43247-024-01338-2
10	Cerrato, E et al.	Erbium-Doped LiYF4 as a Potential Solid-State Frequency Reference: Eligibility and Spectroscopic Assessment	Crystals	1	2023	10.3390/cryst13101476
11	Goti, I et al.	Absolute frequency measurement of a Yb optical clock at the limit of the Cs fountain	Metrologia	15	2023	10.1088/1681-7575/accbc5
12	Barbiero, M et al.	Broadband serrodyne phase modulation for optical frequency standards and spectral purity transfer	Opt. Lett.	9	2023	10.1364/OL.485064
13	Donadello, S et al.	Embedded Digital Phase Noise Analyzer for Optical Frequency Metrology	IEEE Trans. Instrum. Meas.	8	2023	10.1109/TIM.2023.3288255
14	Risaro, M et al.	Improving the Resolution of Comb-Based Frequency Measurements Using a Track-And-Hold Amplifier	Phys. Rev. Appl.	4	2022	10.1103/PhysRevApplied.18.064010
15	Clivati, C et al.	Coherent Optical-Fiber Link Across Italy and France	Phys. Rev. Appl.	24	2022	10.1103/PhysRevApplied.18.054009
16	Marra, G et al.	Optical interferometry-based array of seafloor environmental sensors using a transoceanic submarine cable	Science	150	2022	10.1126/science.abc1939

17	Formichella, V et al.	Year-long optical time scale with sub-nanosecond capabilities	Optica	7	2022	10.1364/OPTICA.509706
18	Clivati, C et al.	Coherent phase transfer for real-world twin-field quantum key distribution	Nat. Commun.	109	2022	10.1038/s41467-021-27808-1
19	Barbiero, M et al.	Optically Loaded Strontium Lattice Clock With a Single Multi-Wavelength Reference Cavity	IEEE Trans. Instrum. Meas.	13	2022	10.1109/TIM.2022.3165292
20	Battelier, B et al.	Exploring the foundations of the physical universe with space tests of the equivalence principle	Exp. Astron.	31	2021	10.1007/s10686-021-09718-8
21	Husmann, D et al.	SI-traceable frequency dissemination at 1572.06 nm in a stabilized fiber network with ring topology	Opt. Express	31	2021	10.1364/OE.427921
22	Bacco, D et al.	Toward Fully-Fledged Quantum and Classical Communication Over Deployed Fiber with Up-Conversion Module	Adv. Quantum Technol.	5	2021	10.1002/qute.202000156
23	Sekido, M et al.	A broadband VLBI system using transportable stations for geodesy and metrology: an alternative approach to the VGOS concept	J. Geodesy	7	2021	10.1007/s00190-021-01479-8
24	Pizzocaro, M et al.	Intercontinental comparison of optical atomic clocks through very long baseline interferometry	Nat. Phys.	59	2021	10.1038/s41567-020-01038-6
25	Clivati, C et al.	Common-clock very long baseline interferometry using a coherent optical fiber link	Optica	84	2020	10.1364/OPTICA.393356
26	Riedel, F et al.	Direct comparisons of European primary and secondary frequency standards via satellite techniques	Metrologia	37	2020	10.1088/1681-7575/ab6745
27	Pizzocaro, M et al.	Absolute frequency measurement of the $1S_0$ - $3P_0$ transition of ^{171}Yb with a link to international atomic time	Metrologia	62	2020	10.1088/1681-7575/ab50e8
28	Clivati, C et al.	Robust optical frequency dissemination with a dual-polarization coherent receiver	Opt. Express	13	2020	10.1364/OE.378602
29	D'Ambrosio, D et al.	A QCL-based metrological-grade source at 6 μm	Appl. Phys. B-Lasers Opt.	0	2020	10.1007/s00340-020-7388-4
30	Wengerowsky, S et al.	Passively stable distribution of polarisation entanglement over 192 km of deployed optical fibre	npj Quantum Inform.	70	2020	10.1038/s41534-019-0238-8
31	Barbiero, M et al.	Sideband-Enhanced Cold Atomic Source for Optical Clocks	Phys. Rev. Appl.	35	2020	10.1103/PhysRevApplied.13.014013
32	Bacco, D et al.	Field trial of a three-state quantum key distribution scheme in the Florence metropolitan area	EPJ Quantum Technol.	53	2019	10.1140/epjqt/s40507-019-0075-x

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