

Marco Andrea Arrigo MARANGONI

Curriculum Vitae et Studiorum



Birth date 11/01/1970
Birth place Bollate (MI)
Place of residence Milano
Affiliation: Dipartimento di Fisica – Politecnico di Milano
and Istituto di Fotonica e Nanotecnologie del CNR
Office address in Milano: Piazza Leonardo da Vinci 32
20133 Milano (Italy)
Tel: +39 02 23996070
Office address in Lecco: Via Gaetano Prevati 1/c
23900 Lecco (Italy)
Tel: +39 02 23998888
Mobile phone 3474490421
e-mail: marco.marangoni@polimi.it
website: <http://www.fisi.polimi.it/en/people/marangoni>

Education

1999 **Ph D** in Electronic and Communication Engineering
1995 **Master of Science** in Electronic Engineering with final grade 100/100 *cum laude* at Politecnico di Milano.
1995 **Diploma of maturity** in Scientific High school with final grade 60/60.

Work experience

2021-present **Full Professor in Physics** (Fisica Sperimentale – FIS/01) at Politecnico di Milano
2011 - 2021 **Associate Professor in Physics** at Politecnico di Milano
2001 - 2010 **Staff Researcher** at Politecnico di Milano
1999 – 2001 **Post-Doctoral Fellow** at Politecnico di Milano

Research experience

2008-present **Independent group leader since 2008**, at the Polo di Lecco of Politecnico di Milano, as attested by the last authorship in > 30 papers published in peer-reviewed journals since then
2018 **Founder of the Coherent H₂ Raman Metrology (CHROME) laboratory** at the Polo di Lecco of the Institute of Photonics and Nanotechnology of CNR (IFN-CNR), the first and only worldwide laboratory conjugating frequency comb spectroscopy and Coherent Raman spectroscopy for tests of quantum-electrodynamics on molecular hydrogen.
2008 **Founder of the COMb-aSsisted MOlecular Spectroscopy (COSMOS) laboratory** at the Polo di Lecco of Politecnico di Milano, the first laboratory of the Physics Department in Lecco and the first of the Department addressing the research area of frequency comb spectroscopy and optical metrology.

Research interests

Research interests and related publications have covered a wide range of topics in the fields of nonlinear and integrated optics, ultrafast processes, linear and nonlinear vibrational spectroscopy and microscopy:

High-precision molecular spectroscopy	Highly accurate spectroscopic investigation of molecular gas samples, in the near- and mid-infrared, through the use of optical frequency combs in combination with semiconductor and quantum-cascade lasers
Trace gas detection	Development of cavity-enhanced comb-assisted spectrometers for trace gas detection, investigation of weakly absorbing species, ultra-precise determination of line-centre frequencies in sub-Doppler regime
Optical frequency combs synthesizers	Synthesis of optical frequency combs with wide tunability in the mid-infrared spectral region through difference frequency generation and optical parametric oscillation
Coherent Raman microscopy	Development of novel fiber-format systems for Coherent Raman microscopy in a variety of regimes: Coherent-Antistokes Raman Scattering, Stimulated Raman Scattering, Raman-Induced Kerr Effect
Ultrafast II order nonlinear processes	Experimental study of II order nonlinear processes in the ultrafast regime: temporal compression, group-velocity control, spectral compression, parametric generation and amplification
Quantum – Optical analogies	Fabrication of photonic model systems to investigate and visualize ‘hard-to-observe’ quantum phenomena with classical light in photonic circuits
All-optical guided devices	Design, fabrication and characterization of nonlinear optical waveguides realized by proton-exchange in periodically-poled lithium-niobate and tantalite for all-optical processing of telecom signals
Optical waveguides characterization	Development of techniques for highly accurate determination of losses and refractive index profiles of both surface and buried waveguides, exploiting both guided and radiation modes

International collaborations

- **Dr. Kenji Kitamura:** *National Institute for Research in Inorganic Materials – Tsukuba (Japan)*
Optics Letters 31, 534 (2006) – FIRST AUTHOR
Optics Letters 31, 83 (2006)
- **Dr. Uwe Morgner:** *Leibniz Universität – Hannover (Germany)*
Optics Letters 34, 620 (2009)
Optics Letters 32, 1489 (2007) – FIRST AUTHOR
Physical Review Letters 122, 123606 (2019).
- **Prof. Alfred Leitenstorfer:** *University of Konstanz -Costanza (Germany)*
Optics Letters 35, 2645 (2010)
- **Prof. Andrius Baltuska:** *University of Technology, Photonics Institute Vienna – Vienna (Austria)*
Optics Letters 40, 2469 (2015)
Optics Express 20, 18784 (2012)
- **Dr. Axel Ruehl:** *Vrije University – Amsterdam (Netherlands)*
Optics Letters 37, 2232 (2012) – LAST AUTHOR
- **Dr. Martin Fermann:** *IMRA America Inc. – Ann Arbor, Michigan (USA)*
Optics Letters 37, 4083 (2012) – LAST AUTHOR
Physical Review A 88, 012514 (2013)
- **Dr. Daniele Romanini:** *CNRS e Université Joseph Fourier – Grenoble (France)*
Journal of Chemical Physics 148, 054202 (2018).
Journal of Quantitative Spectroscopy & Radiative Transfer 154, 35(2015)
Journal of Chemical Physics 142, 191103 (2015)
Optics Letters 40, 816 (2015) – LAST AUTHOR
- **Prof. Harald Giessen:** *University of Stuttgart – Stuttgart (Germany)*
Light: Science & Applications 5, e16149 (2016)

- Optics Letters 40, 593 (2015)
- **Dr. Whilelm G. Kaenders:** *TOPTICA PHOTONICS CEO– Munich (Germany)*
Scientific Reports 10, 2523 (2020) – LAST AUTHOR.
New Journal of Physics 22, 083071 (2020) – LAST AUTHOR
- **Prof. Aamir Farooq:** *King Abdullah University of Science and Technology – Jeddah (Saudi Arabia)*
Communication Physics 3, 1 (2020) - LAST AUTHOR
Optics Express 27, 23785-23790 (2019)
Scientific Reports 8, 1292 (2018) – LAST AUTHOR
- **Prof. Piotr Maslowski:** *Nicolaus Copernicus University – Torun (Poland)*
Applied Physics B: Lasers and Optics 125: 18 (2019)
Journal of Chemical Physics 147, 134201 (2017).
- Dr. Piotr Wcislo: *Nicolaus Copernicus University – Torun (Poland)*
Physical Review A 101, 052504 (2020) – LAST AUTHOR

National collaborations

- **Prof. Livio Gianfrani:** *Il Università di Napoli – Caserta*
Physical Review A 97, 012512 (2018) – LAST AUTHOR.
Optics Letters 40, 304 (2015) – LAST AUTHOR
Physical Review A 88, 012514 (2013)
Applied Physics B-Lasers and Optics 110, 155 (2013) – LAST AUTHOR
Optics Letters 37, 4083 (2012) – LAST AUTHOR
Optics Express 19, 17520 (2011) – LAST AUTHOR
Applied Physics B-Lasers and Optics 102, 725 (2011)
Applied Physics Letters 99, 251107 (2011) – LAST AUTHOR
New Journal of Physics 12, 103006 (2010)
- **Prof. Marco Prevedelli:** *Università di Bologna – Bologna*
Optics Letters 40, 5176 (2015) – LAST AUTHOR
Journal of Chemical Physics 142, 074201 (2015) – LAST AUTHOR
- **Prof. Filippo Tamassia:** *Università di Bologna – Bologna*
Communication Physics 3, 1 (2020) - LAST AUTHOR

Overall scientific productivity – 21st December 2021

Source	h-index	Citations
Scopus	32	4166
Google Scholar	36	5087

Articles in peer reviewed journals	117
Book chapters	10
Invited presentations at international conferences	10
Accepted presentations at international conferences	144
Patents	5

Awards and Honors

- 2022 **Selected among the 3 best candidates for the role of Director** of the Institute of Photonics and Nanotechnology of CNR
- 2020 **Outstanding reviewer recognition** from the Optical Society of America
- 2018 **First prize winner of the Switch2Product competition** for the best startups from Politecnico di Milano and Università Bocconi. Name of the startup: Lithium Lasers
- 2007 **Winner of a startup grant** for the setting of a new laboratory and a new research activity on optical frequency combs at the campus of Lecco of Politecnico di Milano

Management and organizational skills

2021-present	Organizer of the Cavity-Enhanced Spectroscopy Conference (CES 2022) , held at the Polo di Lecco of Politecnico di Milano on June 14 th -17 th . The role encompasses coordination activities at a scientific, organizational and logistic level, as well as attraction of sponsorships, website creation, advertising of the event.
2019	Co-founder of the start-up company Lithium Lasers (https://lithiumlasers.com/), devoted to the development of innovative ultrafast Yb:based laser systems. Co-founding was accompanied by technical and financial support to the startup over two years, introduction of the startup in the incubation pathways of Polihub, benchmarking of the startup as a spin-off company of Politecnico di Milano, IPR protection through the Technology Transfer Office of Politecnico di Milano, awarding of the startup by 265.000 € thanks to its inclusion in a winning ITN-Marie Curie project. This supporting activity fostered in 2021 the successful conclusion of an investment round by 700.000 € from Poli360, the venture capital fund formed by Politecnico di Milano with Capital Partners.
2018-2019	Head of the Research Unit in Lecco of the Photonics and Nanotechnology Institute (IFN) of the National Research Council (CNR) . This role allowed me to supervise and bring to success the entire process that brought IFN to install three new laboratories and activate three correspondingly new research lines in the newly built Polo del CNR di Lecco, under the points of view of organization, funding, logistics and recruitment of personnel.
2018	Organizer of the Annual Meeting of the Institute of Photonics and Nanotechnology of CNR – IFN Day 2018 - at the Polo di Lecco of CNR. The role encompassed coordination activities at a scientific, organization and logistic level.
2016	Director of the 2016 Winter School on Optical Frequency Combs at the International Centre for Theoretical Physics (ICTP) in Trieste (February 15th-26th). This activity involved the formation of an International Program Committee and the organization of an intense program of lectures, over two weeks, given by 20 invited scientists with top-notch pedigree. No. of attendees: 179.

Grants and responsibility in Research Projects

Years	Funded Project	Role
2023-2025	PRIN project 2022 - ultra-broadband photo-thermal microscopy for label-free biochemical imaging of cells and tissues (TROPIC)	Project coordinator
2022-2025	Horizon Europe project EIC-2021 - PATHFINDEROPEN-01 call: ultrafast holographic FT-IR microscopy (TROPHY)	Project coordinator
2020-2023	Collaborative project with KAUST (Saudi Arabia) and Université de Laval (Canada) Dual-Comb Spectroscopy in the Mid-IR for Chemical Kinetic Studies	Unit coordinator
2019-2020	Collaborative project with KAUST – Saudi Arabia Comb-calibrated cavity-ring-down spectroscopy around 7.8 micron	Unit coordinator
2018-2019	Collaborative project with KAUST – Saudi Arabia Development of two new sensors for industry	Unit coordinator
2017-2019	Progetto Emblematico, Regione Lombardia – Fondazione Cariplo Empowerment del PAZienTe in cAsa (EMPATIA)	Unit coordinator
2017-2018	Accordo quadro Regione Lombardia – CNR Future Home for Future Communities (FHfFC)	Unit coordinator
2016-2019	Collaborative project with KAUST – Saudi Arabia Frequency-comb-calibrated cavity-Enhanced Absorption Spectroscopy at high Temperatures for combustion-relevant gases (FEAST)	Unit coordinator
2013-2015	Regional project from Fondazione Cariplo Surface-enhanced Coherent Antistokes Raman Scattering for label-free ultra-sensitive detection	Project Coordinator
2012-2014	National FIRB project	Team member

Cold fluoromethane molecules for ultra-high-resolution ro-vibrational spectroscopy assisted by comb synthesizers: laboratory test of the constancy of the proton-to-electron mass ratio

2013-2014	Regional project from Fondazione banca del Monte di Lombardia Analisi del respiro umano mediante spettrometro laser assistito da pettini di frequenza ottici	Project coordinator
2011-2012	Regional project from Lombardia Sviluppo di un sistema di spettroscopia Raman Coerente per imaging biomedicale	Team member
2010-2012	European FET-OPEN project Coherently-enhanced Raman One-beam Standoff Spectroscopic TRacing of Airborne Pollutants" (CROSS-TRAP)	Work-Package Leader
2010-2011	Regional project from Fondazione banca del Monte di Lombardia Microscopia vibrazionale coerente per la medicina e le biotecnologie	Team member
2007-2009	Internal project from Politecnico di Milano Comb-assisted molecular spectroscopy	Project Coordinator

Teaching experience

2005 - Present	<i>Thesis supervisor</i> 6 PhD students 9 Master students 22 undergraduate students		
2010 - Present	<i>Physics Professor at Politecnico di Milano</i> Physics I Experimental Physics A + B Micro and Nano-optics	Bachelor Bachelor Master of Science	Years: 2020-2021 Years: 2010-2020 Years: 2010-2021
1998- 2010	<i>Assistant or contract Professor at Politecnico di Milano</i> Experimental Physics A + B General Physics	Bachelor Diploma students	Years: 2000-2010 Years: 1998-1999
1997 - 2008	<i>Teaching assistant at Politecnico di Milano</i> Laser Applications Optical Technologies General Physics II	Years: 2004-2008 Years: 2003-2004 Years: 1997-2002	

Contribution to the early careers of excellent researchers

Among the PhD and Postdoc students that I have supervised, four of them managed to successfully pursue a scientific career and work in prestigious research institutions worldwide:

1. Davide Gatti, Assistant Professor, Politecnico di Milano (Italy);
2. Mirko Lobino, Associate Professor, Università di Trento (Italy);
3. Alessio Gambetta, Assistant Professor, Politecnico di Milano (Italy);
4. Vikas Kumar, Senior Researcher, University Duisburg-Essen (Germany).
5. Szymon Wojtewicz, Assistant Professor, Nicolaus Copernicus University in Torun (Poland)
6. Lucile Rutkowski, CNRS researcher in Rennes (France)
7. Marco Lamperti, Assistant Professor at Università dell'Insubria (Italy)

My group has been selected in 2017 as a destination for a Polish Marie-Curie fellowship by Szymon Wojtewicz, Postdoctoral researcher at the Nicolaus University in Torun, which is a recognized center of excellence for collisional physics, precision spectroscopy, optical atomic clocks.

Committees and Editorial activities

2022-present	Chair of the Precision Metrology and Frequency Combs sub-committee for the European Quantum Electronics Conference (EQEC)
2018-present	Member of juries for public competitions of RTDA and RTDB researcher positions
2012-present	Member of the Evaluation Committee for the PhD in Physics at Politecnico di Milano
2013-present	Graduate student advisor for Engineering Physics at Politecnico di Milano
2019-21	Member of the Precision Metrology and Frequency Combs sub-committee for the European Quantum Electronics Conference (EQEC)
2015-18	Member of the Optical Metrology Subcommittee for the Conference on Lasers and Electro-Optics (CLEO).
2014-18	Member of the Solid-State-Laser Subcommittee for the Europhoton Conference.
2012-21	External Committee member for the assignment of the PhD title in Physics / Electrical Engineering to Atif Shehzad at Université de Neuchâtel (Switzerland, 2021), Al Saif Bidoor at King Abdullah University of Science and Technology Grenoble (Saudi Arabia, 2019), Maria Carmela Cardilli, Angelo Sampaolo, Annalisa Volpe at Università degli Studi di Bari (Italy, 2017), Johannes Burkart at Université de Grenoble (France, 2015), Lucile Rutkowski at Université Claude Bernard Lyon (France, 2014), Chadi Abd Alrahman at Université de Grenoble (France, 2012)

Marco Marangoni constantly carries out an activity of reviewer for major journals in the field of lasers and optics, such as Light Science and Applications, Optica, Scientific Reports, Optics Letters, Optics Express, etc.

Invited Presentations at Conferences

1. M. Marangoni, "Optical metrology of molecular hydrogen by Stimulated Raman Scattering", Conference on Photonics for Advanced Spectroscopy and Sensing 2023, Castellaneta Marina (TA), September 3-8, 2023
2. M. Marangoni, "Coherent Raman Scattering Metrology of Molecular Hydrogen", Imaging & Sensing Congresses 2022, Vancouver, July 15-22, 2022
3. M. Marangoni, "Coherent Raman metrology on the H₂(1-0) band", Precision Spectroscopy of Molecular Hydrogen - virtual workshop, June 22, 2020
4. M. Marangoni, "Broadband stimulated Raman scattering microscopy", Marseille Multiphoton Microscopy conference, Marseille, November 29-30, 2017
5. M. Marangoni, "Frequency comb calibrated spectroscopy in the mid-infrared", Tunable Diode Laser Spectroscopy International Conference, Moscow, July 5-9, 2015.
6. M. Marangoni, "Precision mid-infrared frequency combs and spectroscopic applications", LASE LA106 conference at Photonics West, San Francisco, February 2-7, 2013.
7. M. Marangoni, "Absolute Frequency Spectroscopy in the Mid-Infrared Region Through a Comb-Referenced Quantum-Cascade-Laser", Tunable Diode Laser Spectroscopy International Conference, Zermatt, June 11-15, 2011.
8. M. Marangoni and G. Cerullo, "Coherent Raman Spectroscopy with a Fiber-Format Femtosecond Laser Oscillator", MicroCARS workshop, Bad-Honnef, October 14-16, 2010.
9. M. Marangoni and G. Cerullo, "Coherent Raman Spectroscopy with a Fiber-Format Femtosecond Laser Oscillator", International Conference on Raman Spectroscopy (ICORS), Boston, August 7-12, 2010.
10. M. Marangoni, "Tunable frequency combs in the fingerprint region from a compact erbium-doped fiber oscillator", Mid Infrared Coherent Sources (MICS) conference, Trouville, June 8-12, 2009.

Patents

1. M. E. Fermann, M. Marangoni, F. Gatti, “Methods for precision optical frequency synthesis and molecular detection”, WO2013148757 A1.
 2. G. Cerullo, M. Marangoni, C. De Angelis, M. Conforti, F. Baronio, “System for generating Raman vibrational analysis signals”, US 20110128538 A1.
 3. R. Osellame, R. Ramponi, M. Marangoni, “Reconfigurable optical device for wavelength division multiplexing networks”, US 20050047712 A1.
 4. “Optical amplifier and amplified pulsed laser”, patent pending (Italy), request n° 782021000178769 deposited on 06/12/2021
 5. “Tunable mid-infrared laser source emitting between 12.6 and 15 μm ”, US Patent App. 17/307,087, 2021.
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List of publications in peer-reviewed journals

1. M. Lamperti, L. Rutkowski, D. Ronchetti, D. Gatti, R. Gotti, G. Cerullo, F. Thibault, H. Jóźwiak, S. Wójtewicz, P. Masłowski, P. Wcisło, D. Polli, and M. Marangoni, “Stimulated Raman scattering metrology of molecular hydrogen”, *Commun. Phys.* **6**, 67 (2023).
2. A. Elkhazraji, M. Adil, M. Mhanna, N. Abualsaud, A. A. Alsulami, M. K. Shakfa, M. Marangoni, B. Giri, and A. Farooq, “A mid-IR laser diagnostic for HCN detection”, *Proc. Combust. Inst.* **39**, 1485-1493 (2023).
3. M. Lamperti, L. Rutkowski, D. Gatti, R. Gotti, L. Moretti, D. Polli, G. Cerullo, and M. Marangoni, “A stimulated Raman loss spectrometer for metrological studies of quadrupole lines of hydrogen isotopologues”, *Molecular Physics*, e2196353 (2023) <https://doi.org/10.1080/00268976.2023.2196353>
4. A. Elkhazraji, M. K. Shakfa, N. Abualsaud, M. Mhanna, M. Sy, M. Marangoni, and A. Farooq, “Laser-based sensing in the long-wavelength mid-infrared: chemical kinetics and environmental monitoring applications”, *Appl. Opt.* **62**, A46-A58 (2023).
5. A. Elkhazraji, M. K. Shakfa, M. Lamperti, K. Hakimov, K. Djebbi, R. Gotti, D.- Gatti, M. Marangoni, and A. Farooq, “High-resolution molecular fingerprinting in the 11.6–15 μm range by a quasi-CW difference-frequency-generation laser source”, *Opt. Express* **31**, 4164-4178 (2023).
6. R. Vanna, A. De la Cadena, B. Talone, C. Manzoni, M. Marangoni, D. Polli, and Giulio Cerullo, “Vibrational imaging for label-free cancer diagnosis and classification”, *La Rivista del Nuovo Cimento*, **45**, 107-187 (2022)
7. R. Gotti, M. Lamperti, D. Gatti, and M. Marangoni, “Laser-Based Primary Thermometry: A Review”, *Journal of Physical and Chemical Reference Data* **50**, 031501 (2021).
8. A. Villa, A. M. Ross, R. Gotti, M. Lamperti, F. Scotognella, G. Cerullo, and M. Marangoni, “Broadly tunable mid-infrared femtosecond pulses directly generated by an optical parametric amplifier”, *OSA Continuum* **4**, 2837-2844 (2021).
9. M. K. Shakfa, M. Mhanna, H. Jin, D. Liu, K. Djebbi, M. Marangoni, and Aamir Farooq, “A mid-infrared diagnostic for benzene using a tunable difference-frequency-generation laser”, *Proc. Combust. Inst.* **38**, 1787–1796 (2021).
10. R. Gotti, T. Puppe, Y. Mayzlin, J. Robinson-Tait, S. Wójtewicz, D. Gatti, B. Alsaif, M. Lamperti, P. Laporta, F. Rohde, R. Wilk, P. Leisching, W. G. Kaenders, and M. Marangoni, “Comb-locked frequency-swept synthesizer for high precision broadband spectroscopy”, *Scientific Reports* **10**, 2523 (2020).
11. M. Lamperti, R. Gotti, D. Gatti, M. K. Shakfa, E. Cané, F. Tamassia, P. Schunemann, P. Laporta, A. Farooq, and M. Marangoni, “Optical frequency metrology in the bending modes region”, *Commun. Phys.* **3**, 1-7 (2020).
12. R. Gotti, M. Lamperti, D. Gatti, S. Wójtewicz, T. Puppe, Y. Mayzlin, B. Alsaif, J. Robinson-Tait, F. Rohde, R. Wilk, P. Leisching, W. G. Kaenders, P. Laporta, and M. Marangoni, “Multispectrum rotational states distribution thermometry: application to the $3\nu_1 + \nu_3$ band of carbon dioxide”, *New J. Phys.* **22**, 083071 (2020).
13. S. Wójtewicz, R. Gotti, D. Gatti, M. Lamperti, P. Laporta, H. Jóźwiak, F. Thibault, P. Wcisło, and M. Marangoni, “Accurate deuterium spectroscopy and comparison with ab initio calculations”, *Phys. Rev. A* **101**, 052504 (2020).

14. A. De la Cadena, C. M Valensise, M. Marangoni, G. Cerullo, and D. Polli, "Broadband stimulated Raman scattering microscopy with wavelength-scanning detection", *Journal of Raman Spectroscopy* **51**, 1951–1959 (2020).
15. B. AlSaif, D. Gatti, M. Lamperti, P. Laporta, A. Farooq, and M. Marangoni, "Comb-calibrated sub-Doppler spectroscopy with an external-cavity quantum cascade laser at 7.7 μm ," *Optics Express* **27**, 23785-23790 (2019)
16. A. G. Paschke, G. Zarantonello, H. Hahn, T. Lang, C. Manzoni, M. Marangoni, G. Cerullo, U. Morgner, and C. Ospelkaus, "Versatile Control of Be⁺ 9 Ions Using a Spectrally Tailored UV Frequency Comb", *Physical Review Letters* **122**, 123606 (2019).
17. S. Borri, G. Insero, G. Santambrogio, D. Mazzotti, F. Cappelli, I. Galli, G. Galzerano, M. Marangoni, P. Laporta, V. Di Sarno, L. Santamaria, P. Maddaloni, and P. De Natale, "High-precision molecular spectroscopy in the mid-infrared using quantum cascade lasers", *Applied Physics B: Lasers and Optics* **125**: 18 (2019)
18. S. Wojtewicz, A. Cygan, K. Kropidłowska, M. Marangoni, P. Masłowski, D. Lisak, and R. Ciuryło, "Speed-dependent effects in Doppler-free saturation spectra", *Journal of Molecular Spectroscopy* **351**, 21-28 (2018).
19. D. Polli, V. Kumar, C. Valensise, M. Marangoni, and G. Cerullo, "Broadband Coherent Raman Scattering Microscopy", *Laser and Photonics Reviews* **12**: 1800020 (2018).
20. R. Gotti, M. Prevedelli, S. Kassi, M. Marangoni, and D. Romanini, "Feed-forward coherent link from a comb to a diode laser: Application to widely tunable cavity ring-down spectroscopy", *Journal of Chemical Physics* **148**, 054202 (2018).
21. B. AlSaif, M. Lamperti, D. Gatti, P. Laporta, M. E. Fermann, A. Farooq, O. Lyulin, A. Campargue, and M. Marangoni, "High accuracy line positions of the $\nu(1)$ fundamental band of (N₂O)-N-14-O-16", *Journal of Quantitative Spectroscopy & Radiative Transfer* **211**, 172-178 (2018).
22. R. Gotti, L. Moretti, D. Gatti, A. Castrillo, G. Galzerano, P. Laporta, L. Gianfrani, and M. Marangoni, "Cavity-ring-down Doppler-broadening primary thermometry", *Physical Review A* **97**, 012512 (2018).
23. M. Lamperti, B. Alsaif, D. Gatti, M. Fermann, P. Laporta, A. Farooq, and M. Marangoni, "Absolute spectroscopy near 7.8 μm with a comb-locked extended-cavity quantum-cascade-laser", *Scientific Reports* **8**, 1292 (2018).
24. F. Crisafi, V. Kumar, A. Perri, M. Marangoni, G. Cerullo, and D. Polli, "Multimodal nonlinear microscope based on a compact fiber-format laser source", *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* **188**, 135-140 (2018).
25. N. Coluccelli, D. Viola, V. Kumar, A. Perri, M. Marangoni, G. Cerullo, and D. Polli, "Tunable 30 fs light pulses at 1 W power level from a Yb-pumped optical parametric oscillator", *Optics Letters* **42**, 4545-4548 (2017).
26. R. Gotti, D. Gatti, P. Masłowski, M. Lamperti, M. Belmonte, P. Laporta, and M. Marangoni, "Conjugating precision and acquisition time in a Doppler broadening regime by interleaved frequency-agile rapid-scanning cavity ring-down spectroscopy", *Journal of Chemical Physics* **147**, 134201 (2017).
27. F. Crisafi, V. Kumar, T. Scopigno, M. Marangoni, G. Cerullo, and D. Polli, "In-line balanced detection stimulated Raman scattering microscopy", *Scientific Reports* **7**, 10745 (2017).
28. T. Steinle, V. Kumar, M. Floess, A. Steinmann, M. Marangoni, C. Koch, C. Wege, G. Cerullo, and Harald Giessen, "Synchronization-free all-solid-state laser system for stimulated Raman scattering microscopy", *Light: Science & Applications* **5**, e16149 (2016).
29. C. Rinaldi, S. Bertoli, M. Asa, L. Baldrati, C. Manzoni, M. Marangoni, G. Cerullo, M. Bianchi, R. Sordan, R. Bertacco, and M. Cantoni, "Determination of the spin diffusion length in germanium by spin optical orientation and electrical spin injection", *Journal of Physics D* **49**, 425104 (2016).
30. D. Gatti, R. Gotti, A. Gambetta, M. Belmonte, G. Galzerano, P. Laporta, and M. Marangoni, "Comb-locked Lamb-dip spectrometer", *Scientific Reports* **6**, 27183 (2016).
31. D. Gatti, R. Gotti, T. Sala, N. Coluccelli, M. Belmonte, M. Prevedelli, P. Laporta, and M. Marangoni, "Wide-bandwidth Pound–Drever–Hall locking through a single-sideband modulator," *Optics Letters* **40**, 5176-5179 (2015).
32. J. Réhault, F. Crisafi, V. Kumar, G. Ciardi, M. Marangoni, G. Cerullo, and D. Polli, "Broadband stimulated Raman scattering with Fourier-transform detection," *Opt. Express* **23**, 25235-25246 (2015).
33. T. Steinle, V. Kumar, A. Steinmann, M. Marangoni, G. Cerullo, and H. Giessen, "Compact, low-noise, all-solid-state laser system for stimulated Raman scattering microscopy," *Optics Letters* **40**, 593-596 (2015).

34. M. Zavelani-Rossi, D. Polli, S. Kochtcheev, A.-L. Baudrion, J. Beal, V. Kumar, E. Molotokaite, M. Marangoni, S. Longhi, G. Cerullo, P.-M. Adam, and G. Della Valle, "Transient Optical Response of a Single Gold Nanoantenna: The Role of Plasmon Detuning," *Acs Photonics* **2**, 521-529 (2015).
35. D. Mondelain, T. Sala, S. Kassi, D. Romanini, M. Marangoni, and A. Campargue, "Broadband and highly sensitive comb-assisted cavity ring down spectroscopy of CO near 1.57 μm with sub-MHz frequency accuracy," *Journal of Quantitative Spectroscopy & Radiative Transfer* **154**, 35-43 (2015).
36. D. Gatti, T. Sala, R. Gotti, L. Cocola, L. Poletto, M. Prevedelli, P. Laporta, and M. Marangoni, "Comb-locked cavity ring-down spectrometer," *Journal of Chemical Physics* **142** (2015).
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