

CURRICULUM VITAE ET STUDIORUM

CONTACT INFORMATION

First name, Family name: Nicola Coluccelli
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ResearcherID: **O-5867-2015**

ACADEMIC POSITIONS AND AFFILIATIONS

2018 – present **Associate professor**, full-time permanent position at the Physics Department of Politecnico di Milano
2011 – 2018 **Assistant professor**, full-time permanent position at the Physics Department of Politecnico di Milano
2007 – present **Affiliation** to the Institute of Photonics and Nanotechnology of the Italian National Research Council (CNR). Nicola Coluccelli has been invited to be part of a research team on near- and mid-infrared solid-state laser sources and applications. This affiliation represents both a recognition of Nicola Coluccelli's early scientific contributions and an indication of his leadership potential and his early establishment of scientific independence. This collaboration has already led to several important scientific results which have been published in international journals.

QUALIFICATION

2016 **National Scientific Qualification as Associate Professor** (02/B1 – Fisica Sperimentale della Materia)

EDUCATION

2009 – 2010 **Post-Doc** research grant at the Physics Department of Politecnico di Milano, for the “Development of solid-state laser sources for photonics, optical waveguide femtosecond writing, and spectroscopy”.
2008 – 2009 **Post-Doc** research grant at the Physics Department of Politecnico di Milano, funded by Selex-Galileo Avionica (Finmeccanica Group), for the design and development of the Master Oscillator of the Lidar System ATLID by the European Space Agency.
2008 **Post-Doc** research grant at the Physics Department of Politecnico di Milano, for the “Development of solid-state laser sources for photonics, optical waveguide femtosecond writing, and spectroscopy”.
2005 – 2008 **PhD** in Physics at the Physics Department of Politecnico di Milano with experimental thesis on “Near-infrared diode-pumped solid-state lasers based on fluoride crystal”, supervisor prof. Paolo Laporta.,
2004 **Master's degree** (full marks: 100/100 *cum laude*) in Telecommunication Engineering at Politecnico di Milano, with thesis on “Solid-state laser sources with wide tunability around 2 μm for Lidar system.”, supervisor prof. Paolo Laporta.

SUMMER SCHOOL

2007 **WE-Heraeus Summer School** – “Optical Supercontinua and Frequency Combs” - June 2007, Wittemberg, Germany.
2006 **International School of Physics “Enrico Fermi”** - Course CLXVI “Metrology and Fundamental Constants” - 18-28 July 2006, Varenna, Italy

INTERNATIONAL MOBILITY

2014 **Visiting researcher** at the Korean Research Institute of Standards and Science - KRISS (Daejeon, Republic of Korea) within the framework of a collaboration with Dr. Jeong Sik Lim (Center for Gas Analysis – Division of Metrology for the Quality of Life) on detection of water-dissolved methane by spectroscopic techniques.

LANGUAGE SKILLS

- Italian: native language.
- English: fluent (speaking, reading, writing)

TEACHING ACTIVITY

2018 **Lecturer** of “Fundamentals of Electromagnetism”, Faculty of Biomedical Engineering, Politecnico di Milano (10 credits).

2017 **Lecturer** of “Fundamentals of Electromagnetism”, Faculty of Biomedical Engineering, Politecnico di Milano (10 credits).

2016 **Lecturer** of “Fundamentals of Electromagnetism”, Faculty of Biomedical Engineering, Politecnico di Milano (10 credits).

2015 **Lecturer** of “Physics”, Faculty of Civil Engineering - Architecture, Politecnico di Milano (6 credits).

2014 **Lecturer** of “Experimental Physics”, Faculty of Civil Engineering - Architecture, Politecnico di Milano (8 credits).

2013 **Lecturer** of “Experimental Physics”, Faculty of Civil Engineering - Architecture, Politecnico di Milano (8 credits).

2012 **Lecturer** of “Experimental Physics”, Faculty of Civil Engineering - Architecture, Politecnico di Milano (8 credits).

2011 **Lecturer** of “Experimental Physics”, Faculty of Civil Engineering - Architecture, Politecnico di Milano (8 credits).

2012 **Assistant Lecturer** (problem solving) of “Experimental Physics”, Faculty of Environmental Engineering, Politecnico di Milano (4 credits)

2011 **Assistant Lecturer** (problem solving) of “Experimental Physics”, Faculty of Environmental Engineering, Politecnico di Milano (4 credits)

2010 **Assistant Lecturer** (problem solving) of “Principles and Applications of Lasers”, Faculty of Physics Engineering, Politecnico di Milano (4 credits)
Assistant Lecturer (problem solving) of “Physics”, Faculty of Mathematics Engineering, Politecnico di Milano (4 credits)
Assistant Lecturer (problem solving) of “Experimental Physics”, Faculty of Environmental Engineering, Politecnico di Milano (4 credits)

2009 **Assistant Lecturer** (problem solving) of “Principles and Applications of Lasers”, Faculty of Physics Engineering, Politecnico di Milano (4 credits)
Assistant Lecturer (problem solving) of “Physics”, Faculty of Mathematics Engineering, Politecnico di Milano (4 credits)
Assistant Lecturer (problem solving) of “Experimental Physics”, Faculty of Environmental Engineering, Politecnico di Milano (4 credits)

2008 **Assistant Lecturer** (problem solving) of “Principles and Applications of Lasers”, Faculty of Electronics Engineering, Politecnico di Milano (4 credits)
Assistant Lecturer (problem solving) of “Principles of Lasers”, Faculty of Mathematics and Physics Engineering, Politecnico di Milano (2 credits)
Assistant Lecturer (problem solving) of “Experimental Physics”, Faculty of Telecommunication Engineering, Politecnico di Milano (4 credits)

2007 **Assistant Lecturer** (problem solving) of “Experimental Physics”, Faculty of Telecommunication Engineering, Politecnico di Milano (4 credits)
Assistant Lecturer (problem solving) of “Principles of Lasers”, Faculty of Mathematics and Physics Engineering, Politecnico di Milano (2 credits)

2006 **Assistant Lecturer** (problem solving) of “Experimental Physics”, Faculty of Telecommunication

- Engineering, Politecnico di Milano (4 credits)
- 2008 – present **Supervisor** of PhD activity (Dr. Marco Cassinerio, now at IMRA America Inc, Ann Arbor – USA) and Bachelor/Master Degree experimental thesis.
- 2005 – present **Tutor** of experimental laboratories in “Experimental Physics” at Politecnico di Milano for a total of approx. 140 tutorial experiments (half-a-day each)

INSTITUTIONAL ACTIVITY

- 2012 – 2014 Member of the Committee (2 members) for the organization of the experimental tutorials in “Experimental Physics” courses of the Physics Department at Politecnico di Milano
- 2012 – 2016 Member of the Committee (3 members) for the selection of Assistant Lecturers of the “Experimental Physics” courses at the Physics Department of Politecnico di Milano.

RESEARCH ACTIVITY

The scientific activity carried out by Dr. Nicola Coluccelli (NC) in the field of Experimental Physics, particularly in the fields of Optics and Laser Physics, is documented by **46 publications** in international peer-reviewed journals and book. It is worth noting that NC has published 22 papers (around 50% of total) as **first author** and also 1 paper as **single author**. Nicola Coluccelli’s research results have been also presented at 21 international conferences, including **1 invited talk**.

Nicola Coluccelli has an **h-index** of 15 (source Scopus) and received **525 citations** from other authors/papers (source: Web of Science). The scientific activity is as follows:

Laser sources with emission in the near and mid-infrared

This research has been devoted to the development of solid-state lasers covering the whole fingerprint region of molecules from 1 to 16 μm . In particular, laser sources emitting in the spectral regions around 1, 2 and 2.5 μm have been implemented based on innovative crystals doped with rare-earth ions of thulium (Tm), thulium-holmium (Ho-Tm), ytterbium (Yb), neodymium (Nd), chromium (Cr). NC was involved in the design, fabrication and characterization of laser sources operating in the continuous-wave regime, demonstrating exceptional performance in terms of tunability, efficiency, and spectral purity, and sources operating in pulsed regime, using the techniques of Q-switching or mode-locking, which have led to the generation of ultrashort laser pulses. Furthermore, NC has developed optical parametric oscillators stabilized for the generation of frequency comb in the range 4-5 μm (mid-infrared) and difference-frequency generation setup yielding frequency comb with coverage from 8 to 16 μm based on GaSe non-linear crystals. This activity is documented by 16 papers published on international journals.

High-resolution laser spectroscopy in the mid-infrared

This activity has been devoted to the implementation of ultra-stable laser sources for application to high-resolution molecular spectroscopy in the near- and mid-infrared spectral regions. In particular, NC has characterized various absorption lines of carbon dioxide (CO₂) around 2 μm and fluoroform (CHF₃) around 8.6 μm , and introduced unprecedented high levels of accuracy in the line profiles enabling the upgrade of the well-known HITRAN database. The explored techniques is extendable to any wavelength in the spectral regions from the near- to the far-infrared. As part of this activity, NC has been the leader of a research unit at Politecnico di Milano within the framework of the national project "Future in Research 2010" funded by the Italian Ministry of University and Research. This project was dedicated to the study of the constancy of the proton-to-electron mass ratio with an innovative technique for the measurement of optical linewidths of less than 1 Hz. This activity is documented by 10 papers published on international journals.

Solid state amplifiers for optical frequency combs in the near and mid-infrared

This research has been devoted to the development of high-power optical amplifiers for use in the field of molecular spectroscopy and frequency metrology. In particular, solid-state amplifiers have been implemented using multi-pass configurations, based on crystals doped with holmium, thulium, and chromium operating around 2 and 2.5 μm , and integrated optical fiber layouts based on the use of erbium-doped fibers with emission at 1.5 μm , and special double-clad

or large-mode-area fibers doped with thulium, holmium, and thulium-holmium. These optical amplifiers have demonstrated the feasibility of frequency combs in the near-infrared region with optical power on the single comb-mode up to 100 μ W. Such a high power content per single comb-mode has opened the way to direct comb spectroscopy in the near infrared. This activity is documented by 5 papers published on international journals.

Coherent Raman spectroscopy and microscopy

This activity has been devoted to the development of a fully integrated fiber system for coherent Raman microscopy for the detection of molecular absorptions without use of labeling, or in the presence of laser beam power compatible with biological tissues, for the determination of tissue composition. Beside the compact layout, that is fundamental for application in bio-medical laboratories, the system has led to extremely interesting results, especially for the exceptional sensitivity of measurement, of the order of 1 part in 10^7 , and for the introduction of a new technique for detecting the amplitude and phase of the nonlinear susceptibility of the 3rd order $\chi^{(3)}$ which is essential for the spatial analysis of biological samples. This activity is documented by 2 papers published on international journals.

MAJOR COLLABORATIONS

- Dr. Christopher Howle, Defence Science and Technology Laboratory (UK). Detection and analysis of water contaminants by high-sensitivity coherent Raman spectroscopy (1 paper published on *Optics Letters*, 1 paper submitted).
- Dr. Alexander Lagatsky, University of St. Andrews (UK). Development of near-infrared femtosecond laser sources based on holmium-doped fluoride crystals with emission at 2 μ m (1 paper published on *Optics Letters*).
- Dr. Magnus Haakestad, Norwegian Defence Research Establishment (FFI, Norway). Development of mid-infrared parametric sources with emission at 2.5 and 4-5 μ m (2 paper published on *Optics Letters*, *Optics Express*).
- Prof. Giulio Cerullo, Politecnico di Milano (Italy). Development of fiber-format system for stimulated Raman scattering microscopy and analysis of epatic tissue (2 papers published on *Optics Letters*, *Journal of Raman Spectroscopy*).
- Prof. Hui Cao, Yale University (USA). Development of a high-resolution fiber spectrometer for direct comb spectroscopy (1 paper accepted)
- Dr. Piotr Maslowski, Nicolaus Copernicus University (Poland). Development of an OPO source for high-resolution direct comb spectroscopy (1 grant assigned, starting on September 2017)
- Dr. Paolo De Natale, Istituto Nazionale di Ottica - CNR (Italy). High-resolution spectroscopy of CO₂ around 2 μ m by high-power frequency combs based on thulium-holmium doped fibers (1 paper published on *Physical Review A*)
- Prof. Livio Gianfrani, Seconda Università degli Studi di Napoli (Italy). High-resolution molecular spectroscopy of CHF₃ around 8.6 μ m by quantum cascade lasers assisted by mid-infrared frequency comb (5 papers on *Optics Letters*, *Applied Physics B*)
- Prof. Mauro Tonelli, Università di Pisa (Italy). Solid-state lasers based on fluoride crystals doped with thulium, erbium, holmium (13 papers on *Optics Letters*, *Optics Express*, *Applied Physics B*)
- Dr. Jeong Sik Lim, Korean Research Institute for Standard and Science (Rep. Of Korea). Analysis of atmospheric gases by high-resolution Fourier transform spectroscopy in the mid-infrared based on optical parametric oscillators (in progress)

FUNDING AND ONGOING GRANTS

- October 2017 **Team Leader** of a Research Unit in the framework of the national research program “Linea R&S per Aggregazioni”, project entitled "EEM- Ecoenometer" (project ID 140952, amount 430'000 €), funded by Regione Lombardia (POR FESR 2014-2020 ASSE I - AZIONE I.1.B.1.3 BANDO “LINEA R&S PER AGGREGAZIONI”).
- September 2017 **Team Leader** of a Research Unit in the framework of the Poland national research program, project entitled "Comb-based investigations of molecular line shapes in the mid-infrared" (Grant N. 2016/23/B/ST2/00730, amount 150'000 €), funded by National Science Center Poland.

- 2016 – 2017 **Principal Investigator** of the project “A portable fiber laser device for hyperspectral detection of water contaminants to counter water-related terrorism” (project n. CDE100909, amount 100’000 €), funded by DSTL (Ministry of Defence, UK)
- 2012 – 2015 **Team Leader** of a Research Unit in the framework of the national research program “Future in Research 2010” with project entitled “Cold fluoromethane molecules for ultra-high resolution ro-vibrational spectroscopy assisted by optical frequency comb synthesizer: a laboratory test of the constancy of proton-to-electron mass ratio,” (project n. RBFR1006TZ_003, amount 217’800 €), funded by the Italian Ministry of University and Research.
- 2015 **Team Leader** of a Research Unit in the framework of the research program “Optical Alcolimeter” funded by a private company (Gibertini Elettronica, <http://www.gibertini.com>). The project is aimed at implementing an optical system for the quantitative analysis of wines.
- 2015 **Team Member** of a Research Unit in the framework of the research program “LO-ABS” and “LO-TRANS” funded by a private company (Salvagnini, <http://www.salvagnini.it>). The project is aimed at implementing an optical system for the characterization of optics for kWatt-level industrial lasers.
- 2008 – 2009 **Team Member** of a Research Unit in the framework of the national research program “PRIN 2008” with project entitled “Amplification of frequency combs in the near-infrared for multispectral direct spectroscopy,” (project n. 2008H9F3ZY), funded by the Italian Ministry of University and Research.
- 2008 – present **Team Member** of a Research Unit in the framework of the space program “ATLID” funded by a private company (Selex ES – Finmeccanica, <http://www.finmeccanica.com>). The project is aimed at the design and development of the Master Oscillator of the Lidar System ATLID by the European Space Agency.
- 2006 – 2007 **Team Member** of a Research Unit in the framework of the national research program “PRIN 2006” with project entitled “Spectroscopic determination of the Boltzmann constant,” (project n. 2006021503), funded by the Italian Ministry of University and Research.

AWARDS AND SPECIAL CITATIONS

- 2009 “**Marcofabio Righini**” **Award 2009** from Istituto dei Sistemi Complessi and Istituto di Struttura della Materia of the Italian National Research Council (CNR) for the “Best PhD Thesis in Optics of 2008”.
- 2007 **Special citation** on the Magazine **Laser Focus World** with title “Thulium-doped crystal achieves tunable lasing in near-IR” for the paper by N. Coluccelli et al., “Tm-doped LiLuF₃ crystal for efficient laser action in the wavelength range from 1.82 to 2.06 μm ”, **Optics Letters** **32**, 2040-2042 (2007).

INVITED TALKS

- 2018 **Invited Talk** at *Cambridge Graphene Center*, 4th June 2018, Cambridge, United Kingdom.
N. Coluccelli, “Fiber Lasers for Precision Spectroscopy of Gases and Liquids.”
- 2016 **Invited Talk** at *Korean Research Institute of Standard and Science*, 18th October 2016, Daejeon, Rep. of Korea.
N. Coluccelli, “The optical Frequency Comb Fiber Spectrometer.”
- 2013 **Invited Talk** at *CLEO/Europe - IQEC 2013 Conference on Lasers and Electro-Optics – International Quantum Electronics Conference*. 12-16 May 2013, Munich, Germany.
G. Galzerano, N. Coluccelli, A. Gambetta, M. Cassinerio, P. Laporta, “Mid-IR solid-state lasers for spectroscopy and metrology applications.”
- 2011 **Invited Talk** at *XCVII Congresso Nazionale*, Società Italiana di Fisica, 26-30 Settembre 2011, L’Aquila, Italia.
G. Galzerano, M. Marangoni, N. Coluccelli, A. Gambetta, D. Gatti, P. Laporta, “Pettini di frequenza ottici di alta energia nel vicino e medio infrarosso”.

BIBLIOMETRICS

	ISI Web of Science	Scopus	Google Scholar
H-index	13	15	16
Total Citations	449	525	605
Average Citations per paper	8,5	7,6	9,4

BOOK CHAPTER

1. V. Kumar, N. Coluccelli, D. Polli
 "Coherent optical spectroscopy/microscopy and applications"
Molecular and Laser Spectroscopy: Advances and Applications, 87-115, edited by Elsevier (2018)
 Digital Object Identifier: <https://doi.org/10.1016/B978-0-12-849883-5.00005-X>

PUBLICATION ON SCIENTIFIC INTERNATIONAL JOURNAL

1. V. Kumar, ???, N. Coluccelli, ???, G. Cerullo, D. Polli,
 "Complex vibrational susceptibility by interferometric Fourier transform stimulated Raman scattering,"
APL Photonics, Vol. ???, ??? (2018)
 Digital Object Identifier: [???](#)
2. M. Siciliani De Cumis, R. Eramo, N. Coluccelli, P. Laporta, G. Galzerano, and P. Cancio Pastor,
 "Multiplexed direct-frequency-comb Vernier spectroscopy of carbon dioxide $2\nu_1 + \nu_2$ ro-vibrational combination band,"
J. Chem. Phys., Vol.148, (2018)
 DOI: [10.1063/1.5008461](https://doi.org/10.1063/1.5008461)
3. N. Coluccelli, E. Vicentini, A. Gambetta, C. R. Howle, K. McEwan, P. Laporta, and G. Galzerano,
 "Broadband Fourier transform coherent Raman spectroscopy by an ytterbium fiber laser,"
Optics Express, *submitted* (2018)
4. E. Vicentini, A. Gambetta, N. Coluccelli, E. Fasci, A. Castrillo, L. Gianfrani, V. Di Sarno, P. Maddaloni, A. Ceausu Velcescu, P. De Natale, Y. Wang, T. T. Fernandez, P. Laporta, and G. Galzerano,
 "Rovibrational structure and transition dipole moment of CF₃H by frequency-comb-assisted saturated spectroscopy at 8.6 μm ,"
J. Quant. Spectrosc. Radiat. Transfer, *accepted* (2018)
5. A. Gambetta, E. Vicentini, N. Coluccelli, Y. Wang, T. T. Fernandez, P. Maddaloni, P. De Natale, A. Castrillo, L. Gianfrani, P. Laporta, and G. Galzerano,
 "Versatile Mid-Infrared Frequency-Comb referenced sub-Doppler spectrometer,"
APL photonics, *accepted for publication* (2018)
 Digital Object Identifier: *pending*
6. N. Coluccelli, C. R. Howle, K. McEwan, Y. Wang, T. T. Fernandez, A. Gambetta, P. Laporta, and G. Galzerano,
 "Fiber-format dual-comb coherent Raman spectrometer,"
Optics Letters, Vol. 42, 4683-4686 (2017)
 Digital Object Identifier: <https://doi.org/10.1364/OL.42.004683>
7. T. T. Fernandez, M. K. Tarabrin, Y. Wang, V. A. Lazarev, S. O. Leonov, V. E. Karasik, Y. V. Korostelin, M. P. Frolov,

- Y. P. Podmarkov, Y. K. Skasyrsky, V. I. Kozlovsky, C. Svelto, P. Maddaloni, N. Coluccelli, P. Laporta, and G. Galzerano,
"Thermo-optical and lasing characteristics of Cr²⁺-doped CdSe single crystal as tunable coherent source in the mid-infrared,"
Opt. Mat. Express, Vol. 7, 3815-3825 (2017)
Digital Object Identifier: <https://doi.org/10.1364/OME.7.003815>
8. N. Coluccelli, D. Viola, V. Kumar, A. Perri, M. Marangoni, G. Cerullo, D. Polli,
"Tunable 30 -fs light pulses at 1-W power level from a Yb-pumped optical parametric oscillator,"
Optics Letters, Vol. 42, 4545-4548 (2017)
Digital Object Identifier: <https://doi.org/10.1364/OL.42.004545>
9. Y. Wang, T. T. Fernandez, N. Coluccelli, A. Gambetta, P. Laporta, and G. Galzerano,
"47-fs Kerr-lens mode-locked Cr:ZnSe laser with high spectral purity,"
Opt. Express 25, 25193-25200 (2017)
Digital Object Identifier: <https://doi.org/10.1364/OE.25.025193>
10. T. T. Fernandez, M. K. Tarabrin, Y. Wang, V. A. Lazarev, S. O. Leonov, V. E. Karasik, Y. V. Korostelin, M. P. Frolov, Y. P. Podmarkov, Y. K. Skasyrsky, V. I. Kozlovsky, C. Svelto, P. Maddaloni, N. Coluccelli, P. Laporta, and G. Galzerano,
"Thermo-optical and lasing characteristics of Cr⁻-doped CdSe single crystal as tunable coherent source in the mid-infrared,"
Opt. Mater. Express 7, 3815-3825 (2017)
Digital Object Identifier: <https://doi.org/10.1364/OME.7.003815>
11. A. Gambetta, E. Vicentini, Y. Wang, N. Coluccelli, E. Fasci, L. Gianfrani, A. Castrillo, V. Di Sarno, L. Santamaria, P. Maddaloni, P. De Natale, P. Laporta, and G. Galzerano,
"Absolute frequency measurements of CHF₃ Doppler-free ro-vibrational transitions at 8.6 μm,"
Optics Letters, Vol. 42, 1911-1914 (2017)
Digital Object Identifier: <https://doi.org/10.1364/OL.42.001911>
12. N. Coluccelli, M. Cassinero, B. Redding, H. Cao, P. Laporta, G. Galzerano
"The optical frequency comb fiber spectrometer,"
Nature Communications, 7 12995 (2016)
Digital Object Identifier: [10.1038/ncomms12995](https://doi.org/10.1038/ncomms12995)
13. A. Gambetta, N. Coluccelli, M. Cassinero, T. T. Fernandez, D. Gatti, A. Castrillo, A. Ceausu-Velcescu, E. Fasci, L. Gianfrani, L. Santamaria, V. Di Sarno, P. Maddaloni, P. De Natale, P. Laporta, G. Galzerano
"Frequency-comb-assisted precision laser spectroscopy of CHF₃ around 8.6 μm,"
Journal of Chemical Physics, Vol. 143, 234202 (2015)
Digital Object Identifier: <http://dx.doi.org/10.1063/1.4937424>
14. N. Coluccelli, M. Cassinero, A. Gambetta, P. Laporta, G. Galzerano,
"Frequency-noise measurements of optical frequency combs by multiple fringe-side discriminators,"
Scientific Reports, Vol. 5, 16338 (2015)
Digital Object Identifier: <http://dx.doi.org/10.1038/srep16338>
15. D. Gatti, R. Gotti, T. Sala, N. Coluccelli, M. Belmonte, M. Prevedelli, P. Laporta, M. Marangoni,
"Wide-bandwidth Pound-Drever-Hall locking through a single-sideband modulator,"
Optics Letters, Vol. 40, Issue 22, pp. 5176-5179 (2015)
Digital Object Identifier: <http://dx.doi.org/10.1364/OL.40.005176>
16. A. Gambetta, M. Cassinero, N. Coluccelli, E. Fasci, A. Castrillo, L. Gianfrani, D. Gatti, M. Marangoni, P. Laporta, G. Galzerano.
"Direct phase-locking of a 8.6 μm quantum cascade laser to a mid-IR optical frequency comb: application to precision spectroscopy of N₂O,"
Optics Letters, Vol. 39, Issue 16, pp. 4946-4949 (2014)

Digital Object Identifier: <http://dx.doi.org/10.1364/OL.39.004946>

17. M. Siciliani de Cumis, R. Eramo, N. Coluccelli, M. Cassinerio, G. Galzerano, P. Laporta, P. De Natale, and P. Cancio Pastor.
“Tracing part-per-billion line shifts with direct-frequency-comb Vernier spectroscopy,”
Phys. Rev. A 91, 012505 (2015)
Digital Object Identifier: <http://dx.doi.org/10.1103/PhysRevA.91.012505>
18. V. Kumar, N. Coluccelli, M. Cassinerio, M. Celebrano, A. Nunn, M. Levrero, T. Scopigno, G. Cerullo, M. Marangoni.
“Low-noise, vibrational-phase-sensitive chemical imaging by balanced detection RIKE,”
Journal of Raman Spectroscopy
Digital Object Identifier: 10.1002/jrs.4584
19. E. Fasci, N. Coluccelli, M. Cassinerio, A. Gambetta, L. Hilico, L. Gianfrani, P. Laporta, A. Castrillo, G. Galzerano.
“Narrow-linewidth quantum cascade laser at 8.6 μm ,”
Optics Letters, Volume 39, Issue 16, pp. 4946-4949 (2014).
Digital Object Identifier: 10.1364/OL.39.004946
20. M. Cassinerio, A. Gambetta, N. Coluccelli, P. Laporta, G. Galzerano.
“Absolute dual-comb spectroscopy at 1.55 μm by free-running Er: fiber lasers,”
Applied Physics Letters, Volume 104, pp. 231102 (2014).
Digital Object Identifier: 10.1063/1.4882862
21. N. Coluccelli, V. Kumar, M. Cassinerio, G. Galzerano, M. Marangoni, G. Cerullo.
“Er/Tm: fiber laser system for coherent Raman microscopy,”
Optics Letters, Volume 39, Issue 11, pp. 3090-3093 (2014).
Digital Object Identifier: 10.1364/OL.39.001661
22. N. Coluccelli, M. Cassinerio, A. Gambetta, P. Laporta, G. Galzerano.
“High-power frequency comb in the range of 2–2.15 μm based on a holmium fiber amplifier seeded by wavelength-shifted Raman solitons from an erbium-fiber laser,”
Optics Letters, Volume 39, Issue 6, pp. 1661-1664 (2014).
Digital Object Identifier: 10.1364/OL.39.001661
23. N. Coluccelli, M. Cassinerio, P. Laporta, G. Galzerano.
“Single-clad Tm–Ho: fiber amplifier for high-power sub-100-fs pulses around 1.9 μm ,”
Optics Letters, Volume 38, Issue 15, pp. 2757-2759 (2013).
Digital Object Identifier: 10.1364/OL.38.002757
24. A. Gambetta, N. Coluccelli, M. Cassinerio, D. Gatti, P. Laporta, G. Galzerano, M. Marangoni.
“Milliwatt level frequency combs in the 8-14 μm range via difference frequency generation from an Er: fiber oscillator,”
Optics Letters, Volume 38, Issue 7, pp. 1155-1157 (2013).
Digital Object Identifier: 10.1364/OL.38.001155
25. N. Coluccelli, M. Cassinerio, P. Laporta, G. Galzerano.
“100-kHz linewidth Cr:ZnSe ring laser tunable from 2.12 to 2.58 μm ,”
Optics Letters, Volume 37, Issue 24, pp. 5088-5090 (2012).
Digital Object Identifier: 10.1364/OL.37.005088
26. A. Gambetta, D. Gatti, A. Castrillo, N. Coluccelli, G. Galzerano, P. Laporta, M. Marangoni,
“Comb-assisted spectroscopy of CO₂ absorption profiles in the near- and mid-infrared regions”.
Applied Physics B: Lasers and Optics, Volume 109, Issue 3, pp. 385-390 (2012).
Digital Object Identifier: 10.1007/s00340-012-4947-3
27. N. Coluccelli, A. Gambetta, T. Sala, D. Gatti, M. Marangoni, P. Laporta, G. Galzerano.
“Frequency stabilized 1-W optical comb at 2.2-2.6 μm by Cr:ZnSe multipass amplification,”
Optics Letters, Volume 37, Issue 21, pp. 4440-4442 (2012).

Digital Object Identifier: 10.1364/OL.37.004440

28. D. Gatti, T. Sala, A. Gambetta, N. Coluccelli, G. Nunzi Conti, G. Galzerano, P. Laporta, M. Marangoni.
“Analysis of the feed-forward method for the referencing of a CW laser to a frequency comb”.
Optics Express, Volume 20, Issue 22, pp. 24880-24885 (2012).
Digital Object Identifier: 10.1364/OE.20.024880
29. T. Sala, D. Gatti, A. Gambetta, N. Coluccelli, G. Galzerano, P. Laporta,
“Wide-bandwidth phase lock between a CW laser and a frequency comb based on a feed-forward configuration,”
Optics Letters, Volume 37, Issue 13, pp. 2592-2594 (2012).
Digital Object Identifier: 10.1364/OL.37.002592
30. N. Coluccelli, H. Fonnum, M. Haakestad, A. Gambetta, D. Gatti, M. Marangoni, P. Laporta, G. Galzerano
“250-MHz synchronously pumped optical parametric oscillator at 2.25–2.6 μm and 4.1–4.9 μm ”.
Optics Express, Volume 20, Issue 20, pp. 22042-22047 (2012).
Digital Object Identifier: 10.1364/OE.20.022042
31. D. Gatti, N. Coluccelli, A. Gambetta, A. Di Lieto, M. Tonelli, G. Galzerano, P. Laporta, M. Marangoni,
“Absolute frequency spectroscopy of CO₂ lines at around 2.09 μm by combined use of an Er: fiber comb and a Ho:YLF amplifier,”
Optics Letters, Volume 36, Issue 19, pp. 3921-3923 (2011).
Digital Object Identifier: 10.1364/OL.36.003921
32. N. Coluccelli, A. Lagatsky, A. Di Lieto, M. Tonelli, G. Galzerano, W. Sibbett, P. Laporta,
“Passive mode locking of an in-band-pumped Ho:YLiF laser at 2.06 μm ,”
Optics Letters, Volume 36, Issue 16, pp. 3209-3211 (2011).
Digital Object Identifier: 10.1364/OL.36.003209
33. N. Coluccelli, A. Gambetta, D. Gatti, M. Marangoni, A. Di Lieto, M. Tonelli, G. Galzerano, P. Laporta,
“1.6-W self-referenced frequency comb at 2.06 μm using a Ho:YLF multipass amplifier,”
Optics Letters, Volume 36, Issue 12, pp. 2299-2301 (2011).
Digital Object Identifier: 10.1364/OL.36.002299
34. L. Marazzi, P. Boffi, P. Parolari, M. Martinelli, D. Gatti, N. Coluccelli, S. Longhi, "Structured FBG filters for 10-Gb/s DPSK signal demodulation in single ended applications".
Optical Fiber Technology, Volume 17, Issue 3, pp. 156-159 (2011).
Digital Object Identifier: 10.1016/j.yofte.2011.01.008
35. N. Coluccelli,
“Nonsequential modeling of laser diode stacks using Zemax: simulation, optimization, and experimental validation”.
Applied Optics, Volume 49, Issue 22, pp. 4237-4245 (2010).
Digital Object Identifier: 10.1364/AO.49.004237
36. N. Coluccelli, G. Galzerano, D. Gatti, A. Di Lieto, M. Tonelli, P. Laporta,
“Passive mode-locking of a diode-pumped Tm:GdLiF laser”.
Applied Physics B: Lasers and Optics, Volume 101, Numbers 1-2, pp. 75-78 (2010).
Digital Object Identifier: 10.1007/s00340-010-4114-7
37. G. Galzerano, N. Coluccelli, D. Gatti, A. Di Lieto, M. Tonelli, P. Laporta,
“CW and femtosecond operation of a diode-pumped Yb:BaYF₃ laser”.
Optics Express, Volume 18, Issue 6, pp. 6255-6261 (2010).
38. N. Coluccelli, G. Galzerano, F. Cornacchia, A. Di Lieto, M. Tonelli, P. Laporta,
“High-efficiency diode-pumped Tm:GdLiF laser at 1.9 μm ”.
Optics Letters, Volume 34, Issue 22, pp. 3559-3561 (2009).
Digital Object Identifier: 10.1364/OL.34.003559

39. G. Galzerano, E. Fasci, A. Castrillo, N. Coluccelli, L. Gianfrani, P. Laporta,
“Absolute frequency stabilization of an extended-cavity diode laser against Doppler-free H₂O absorption lines at 1.384 μm”.
Optics Letters, Volume 34, Issue 20, pp. 3107-3109 (2009).
Digital Object Identifier: 10.1364/OL.34.003107
40. N. Coluccelli, G. Galzerano, D. Parisi, M. Tonelli, P. Laporta,
“Diode-pumped single-frequency Tm:LiLuF₄ ring laser”.
Optics Letters, Volume 33, Issue 17, pp. 1951-1953 (2008).
Digital Object Identifier: 10.1364/OL.33.001951
41. N. Coluccelli, G. Galzerano, L. Bonelli, A. Toncelli, A. Di Lieto, M. Tonelli, P. Laporta,
“Room-temperature diode-pumped Yb³⁺-doped LiYF₄ and KYF₄ lasers”.
Applied Physics B: Lasers and Optics, Volume 92, Number 4, pp. 519-523 (2008).
Digital Object Identifier: 10.1007/s00340-008-3109-0
42. N. Coluccelli, G. Galzerano, M. Tonelli, P. Laporta, O. Svelto,
“Diode-pumped Yb³⁺:KYF₄ femtosecond laser”.
Optics Letters, Volume 33, Issue 10, pp. 1141-1143 (2008).
Digital Object Identifier: 10.1364/OL.33.001141
43. D. Milanese, M. Vota, Q. Chen, J. Xing, G. Liao, H. Gebavi, M. Ferrarsi, N. Coluccelli, S. Taccheo,
“Investigation of infrared emission and lifetime in Tm-doped 75TeO₃:20ZnO:5Na₂O (mol%) glasses: Effect of Ho and Yb co-doping”.
Journal of Non-Crystalline Solids, Volume 354, Issue 18, pp. 1955-1961 (2008).
Digital Object Identifier: 10.1016/j.jnoncrysol.2007.11.010
44. N. Coluccelli, G. Galzerano, L. Bonelli, A. Di Lieto, M. Tonelli, and P. Laporta,
“Diode-pumped passively mode-locked Yb:YLF laser”.
Optics Express, Volume 16, Issue 5, pp. 2922-2927 (2008).
Digital Object Identifier: 10.1364/OE.16.002922
45. N. Coluccelli, G. Galzerano, P. Laporta, F. Cornacchia, D. Parisi, M. Tonelli,
“Tm-doped LiLuF₄ crystal for efficient laser action in the wavelength range from 1.82 to 2.06 μm”.
Optics Letters, Volume 32, Issue 14, pp. 2040-2042 (2007).
Digital Object Identifier: 10.1364/OL.32.002040
46. N. Coluccelli, G. Galzerano, P. Laporta, D. Parisi, A. Toncelli, M. Tonelli,
“Room-temperature Q-switched Tm:BaYF₄ laser pumped by CW diode laser”.
Optics Express, Volume 14, Issue 4, pp. 1518-1523 (2006).
Digital Object Identifier: 10.1364/OE.14.001518
47. N. Coluccelli, D. Gatti, G. Galzerano, F. Cornacchia, D. Parisi, A. Toncelli, M. Tonelli, P. Laporta,
“Tunability range of 245 nm in a diode-pumped Tm:BaYF₄ laser at 1.9 μm: a theoretical and experimental investigation”.
Applied Physics B: Lasers and Optics, Volume 85, Number 4, pp. 553-555 (2006).
Digital Object Identifier: [10.1007/s00340-006-2347-2](https://doi.org/10.1007/s00340-006-2347-2)
48. E. Sani, A. Tonelli, M. Toncelli, N. Coluccelli, G. Galzerano, P. Laporta,
“Comparative analysis of Tm-Ho:KYF₄ laser crystal”.
Applied Physics B: Lasers and Optics, Volume 81, Number 6, pp. 847-851 (2005).
Digital Object Identifier: 10.1007/s00340-005-1941-z

PROCEEDINGS OF INTERNATIONAL CONFERENCES

1. M. Cassinerio, N. Coluccelli, B. Redding, H. Cao, P. Laporta, G. Galzerano,

- “Resolving the teeth of an optical frequency comb with a multimode fiber spectrometer”.
Proceedings of **CLEO/Europe - EQEC 2015**, 21-25 June 2015, Munich, Germany.
2. A. Gambetta, M. Cassinero, N. Coluccelli, E. Fasci, A. Castrillo, D. Gatti, M. Marangoni, L. Gianfrani, P. Laporta, G. Galzerano,
“High-precision spectroscopic system based on a frequency-comb-assisted quantum cascade laser at around 8.6 μm ”.
Proceedings of **CLEO/Europe - EQEC 2015**, 21-25 June 2015, Munich, Germany.
 3. P. C. Pastor, M. Siciliani de Cumis, R. Eramo, P. De Natale, N. Coluccelli, M. Cassinero, G. Galzerano, P. Laporta,
“Measuring part-per-billion lineshifts and frequencies with direct-frequency-comb spectroscopy”.
Proceedings of **CLEO: Science and Innovations 2015**, 12-15 May 2015, San Jose, California.
 4. P. C. Pastor, M. Siciliani de Cumis, R. Eramo, P. De Natale, N. Coluccelli, M. Cassinero, P. Laporta, G. Galzerano,
“Precise Measurements of Molecular Lineshapes with Direct Comb Spectroscopy”.
Proceedings of **Optical Instrumentation for Energy and Environmental Application 2014**, 2-5 December 2014,
Canberra, Australia.
 5. A. Gambetta, N. Coluccelli, M. Cassinero, P. Laporta, G. Galzerano, M. Marangoni,
“Milliwatt-level mid-infrared frequency combs based on difference frequency generation Milliwatt-level mid-infrared
frequency combs based on difference frequency generation”.
Proceedings of **Mid-Infrared Coherent Sources 2013**, 27 October - 1 November 2013, Paris, France.
 6. N. Coluccelli, M. Cassinero, G. Galzerano, P. Laporta,
“Raman soliton amplification by Tm:Ho: fiber for high-efficiency Watt-level ultrashort pulses in the range 1.8-1.92 μm ”.
Proceedings of **CLEO/Europe - IQEC 2013, Conference on Lasers and Electro-Optics - International Quantum
Electronics Conference**. 12-16 May 2013, Munich, Germany.
 7. G. Galzerano, N. Coluccelli, A. Gambetta, M. Cassinero, P. Laporta,
“Mid-IR solid-state lasers for spectroscopy and metrology applications”.
Proceedings of **CLEO/Europe - IQEC 2013, Conference on Lasers and Electro-Optics - International Quantum
Electronics Conference**. 12-16 May 2013, Munich, Germany.
 8. N. Coluccelli, G. Galzerano, A. Di Lieto, M. Tonelli, P. Laporta,
“Wide bandwidth Ho:YLF multi-pass amplifier pumped by Tm: fiber laser”.
Proceedings of **CLEO Europe - EQEC 2011, European Conference on Lasers and Electro-Optics and the European
Quantum Electronics Conference**. 22-26 May 2011, Munich, Germany.
 9. N. Coluccelli, G. Galzerano, A. Di Lieto, M. Tonelli, P. Laporta,
“Passive mode-locking of diode-pumped Tm:GdLiF laser”.
Proceedings of **CLEO/QELS 2010, Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science
Conference**. 16-21 May 2010, San Jose, U.S.A.
 10. N. Coluccelli, G. Galzerano, P. Laporta, F. Cornacchia, A. Di Lieto, M. Tonelli,
“High-efficiency diode-pumped Tm:LiGdF₄ laser at 1.93 μm ”.
Proceedings of **CLEO Europe - EQEC 2009, European Conference on Lasers and Electro-Optics and the European
Quantum Electronics Conference**. 14-19 June 2009, Munich, Germany.
 11. G. Galzerano, N. Coluccelli, A. Di Lieto, M. Tonelli, P. Laporta,
“Wide-tunability solid.state lasers at 1.9 μm for spectroscopy and LIDAR systems”. Proceedings of **ISLNOM-5, 5th
International Symposium on Laser, Scintillator and Non Linear Optical Materials**, 3–5 September 2009, Pisa, Italia.
(ed. Pisa University Press, Italy).
 12. N. Coluccelli, G. Galzerano, L. Bonelli, A. Toncelli, A. Di Lieto, M. Tonelli, P. Laporta, O. Svelto,
“Passive mode-locking of diode-pumped Yb:KYF₄ laser”.
Proceedings of **CLEO/QELS 2008, Conference on Quantum Electronics and Laser Science Conference on Lasers and
Electro-Optics**. 4-9 May 2008, San Jose, U.S.A.

13. N. Coluccelli, G. Galzerano, P. Laporta, L. Bonelli, A. Toncelli, A. Di Lieto, M. Tonelli, V. Calabrese, M. Norgia, A. Pesatori, C. Svelto,
“Novel diode pumped Yb:KYF and Yb:YLF lasers for optical frequency metrology at $1\ \mu\text{m}$ / $0.5\ \mu\text{m}$ ”.
Proceedings of **Frequency Control Symposium**, 2008 IEEE International. 19-21 May 2008, Honolulu, Hawaii, U.S.A.
14. A. Pesatori, M. Norgia, C. Svelto, N. Coluccelli, G. Galzerano, A. Di Lieto, M. Tonelli, P. Laporta,
“Characterization of a Novel Yb:YLF Laser for Optical Frequency Metrology”.
Proceedings of **IMTC 2008. Instrumentation and Measurement Technology Conference, 2008**. 12-15 May 2008,
Victoria, Canada.
15. N. Coluccelli, G. Galzerano, P. Laporta, F. Cornacchia, A. Toncelli, M. Tonelli,
“1-W novel Tm:LiLuF laser with wide tunability around $1.93\ \mu\text{m}$ ”.
Proceedings of **CLEO Europe – IQEC 2007, European Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference**. 17-22 June 2007, Munich, Germany.
16. G. Galzerano, N. Coluccelli, P. Laporta, F. Cornacchia, A. Toncelli, M. Tonelli,
“Diode-pumped Yb-doped fluoride lasers widely tunable around $1.03\ \mu\text{m}$ ”,
Proceedings of **CLEO Europe – IQEC 2007, European Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference**. 17-22 June 2007, Munich, Germany.
17. D. Milanese, M. Vota, G. Liao, M. Ferraris, N. Coluccelli, S. Taccheo,
“Novel rare earth doped tellurite glasses for fiber lasers in the 2-micron wavelength region”.
Proceedings of **SPIE Photonics West, Optical Components and Materials IV**, Volume 6469, 20-26 January 2007, San Jose, U.S.A.
18. M. Vota, D. Milanese, Q. Chen, G. Liao, J. Xing, M. Ferraris, N. Coluccelli, S. Taccheo, “Fabrication and characterization of novel Tm-doped tellurite glasses for single frequency fiber lasers in the $2\text{-}\mu\text{m}$ wavelength region”.
Proceedings of **EPS-QEOD Europhoton Conference, Solid-State and Fiber Coherent Light Sources**, Volume 30J, pp. 17, 10-15 September 2006, Pisa, Italy.

PROCEEDINGS OF NATIONAL CONFERENCES

19. N. Coluccelli, G. Galzerano, P. Laporta, D. Parisi, M. Tonelli,
“Laser a Tm:LiLuF₄ in singola frequenza per spettroscopia di H₂O a $1.89\ \mu\text{m}$ ”.
Atti di **Elettroottica 2008, 10° Convegno Nazionale “Strumentazione e metodi di misura elettroottici”**, 10-12 giugno 2008, Milano, Italia.

CONTRIBUTIONS AND PARTECIPATIONS AT INTERNATIONAL CONFERENCES

1. M. Cassinero, N. Coluccelli, B. Redding, H. Cao, P. Laporta, G. Galzerano,
“Resolving the teeth of an optical frequency comb with a multimode fiber spectrometer”.
Proceedings of **CLEO/Europe - EQEC 2015**, 21-25 June 2015, Munich, Germany.
2. A. Gambetta, M. Cassinero, N. Coluccelli, E. Fasci, A. Castrillo, D. Gatti, M. Marangoni, L. Gianfrani, P. Laporta, G. Galzerano,
“High-precision spectroscopic system based on a frequency-comb-assisted quantum cascade laser at around $8.6\ \mu\text{m}$ ”.
Proceedings of **CLEO/Europe - EQEC 2015**, 21-25 June 2015, Munich, Germany.
3. P. C. Pastor, M. Siciliani de Cumis, R. Eramo, P. De Natale, N. Coluccelli, M. Cassinero, G. Galzerano, P. Laporta,
“Measuring part-per-billion lineshifts and frequencies with direct-frequency-comb spectroscopy”.
Proceedings of **CLEO: Science and Innovations 2015**, 12-15 May 2015, San Jose, California.
4. Vikas Kumar, Nicola Coluccelli, Marco Cassinero, Abigail Nunn, Massimo Levrero, Tullio Scopigno, Marco Marangoni and Giulio Cerullo,
“Balanced-detection RIKE Microscopy with an Hybrid Fiber-based Laser System”
ICORS 2014, International Conference on Raman Spectroscopy. 10-15 August 2014, Jena, Germany.

5. P. C. Pastor, M. Siciliani de Cumis, R. Eramo, P. De Natale, N. Coluccelli, M. Cassinero, P. Laporta, G. Galzerano, “Precise Measurements of Molecular Lineshapes with Direct Comb Spectroscopy”. Proceedings of **Optical Instrumentation for Energy and Environmental Application 2014**, 2-5 December 2014, Canberra, Australia.
6. G. Galzerano, N. Coluccelli, A. Di Lieto, M. Tonelli, P. Laporta, “Wide-tunability solid.state lasers at 1.9 μm for spectroscopy and LIDAR systems”. **ISLNOM-5, 5th International Symposium on Laser, Scintillator and Non Linear Optical Materials**, 3–5 September 2009, Pisa, Italia.
7. A. Gambetta, N. Coluccelli, M. Cassinero, P. Laporta, G. Galzerano, M. Marangoni, “Milliwatt-level mid-infrared frequency combs based on difference frequency generation”. **Advanced Solid State Lasers, Mid-Infrared Coherent Sources, Application of Lasers for Sensing and Free Space Communications**. 27 October - 10 November 2013, Paris, France
8. N. Coluccelli, M. Cassinero, G. Galzerano, P. Laporta, “Raman soliton amplification by Tm-Ho: fiber for high-efficiency Watt-level ultrashort pulses in the range 1.8-1.92 μm ”. **CLEO/Europe - IQEC 2013, Conference on Lasers and Electro-Optics - International Quantum Electronics Conference**. 12-16 May 2013, Munich, Germany.
9. N. Coluccelli, G. Galzerano, A. Di Lieto, M. Tonelli, P. Laporta, “Wide bandwidth Ho:YLF multi-pass amplifier pumped by Tm: fiber laser”. **CLEO Europe - EQEC 2011, European Conference on Lasers and Electro-Optics and the European Quantum Electronics Conference**. 22-26 May 2011, Munich, Germany.
10. N. Coluccelli, G. Galzerano, A. Di Lieto, M. Tonelli, P. Laporta, “Passive mode-locking of diode-pumped Tm:LiGdF₄ laser”. **CLEO/QELS 2010, Laser Science to Photonic Applications**. 16-21 May 2010, San Jose, California, U.S.A.
11. N. Coluccelli, G. Galzerano, P. Laporta, F. Cornacchia, A. Di Lieto, M. Tonelli, “High-efficiency diode-pumped Tm:LiGdF₄ laser at 1.93 μm ”. **CLEO Europe - EQEC 2009, European Conference on Lasers and Electro-Optics and the European Quantum Electronics Conference**. 14-19 June 2009, Munich, Germany.
12. N. Coluccelli, G. Galzerano, P. Laporta, A. Di Lieto, M. Tonelli, “Efficient Yb:BaYF₄ laser with widely tunable emission around 1.03 μm ”. **EPS-QEOD Europhoton Conference, Solid-State and Fiber Coherent Light Sources**, 31 June – 3 September 2008, Paris, France.
13. N. Coluccelli, G. Galzerano, P. Laporta, D. Parisi, M. Tonelli, “Single-frequency Tm:LiLuF₄ ring laser for H₂O spectroscopy at 1.89 μm ”. **EPS-QEOD Europhoton Conference, Solid-State and Fiber Coherent Light Sources**, 31 June – 3 September 2008, Paris, France.
14. N. Coluccelli, G. Galzerano, L. Bonelli, A. Toncelli, A. Di Lieto, M. Tonelli, P. Laporta, O. Svelto, “Passive mode-locking of diode-pumped Yb:KYF₄ laser”. **CLEO/QELS 2008, Conference on Quantum Electronics and Laser Science Conference on Lasers and Electro-Optics**. 4-9 May 2008, San Jose, California, U.S.A.
15. N. Coluccelli, G. Galzerano, P. Laporta, L. Bonelli, A. Toncelli A. Di Lieto, M. Tonelli, V. Calabrese, M. Norgia, A. Pesatori, C. Svelto, “Novel diode pumped Yb:KYF₄ and Yb:YLF lasers for optical frequency metrology at 1 μm / 0.5 μm ”. Frequency Control Symposium, 2008 IEEE International. 19-21 May 2008, Honolulu, Hawaii, U.S.A.
16. A. Pesatori, M. Norgia, C. Svelto, N. Coluccelli, G. Galzerano, A. Di Lieto, M. Tonelli, P. Laporta, “Characterization of a Novel Yb:YLF Laser for Optical Frequency Metrology”. **IMTC 2008, IEEE. Instrumentation and Measurement Technology Conference, 2008**. 12-15 May 2008, Victoria,

Canada.

17. N. Coluccelli, G. Galzerano, P. Laporta, F. Cornacchia, A. Toncelli, M. Tonelli,
“1-W novel Tm:LiLuF laser with wide tunability around 1.93 μm ”.
CLEO Europe – IQEC 2007, *European Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference*. 17-22 June 2007, Munich, Germany.
18. G. Galzerano, N. Coluccelli, P. Laporta, F. Cornacchia, A. Toncelli, M. Tonelli,
“Diode-pumped Yb-doped fluoride lasers widely tunable around 1.03 μm ”,
CLEO Europe – IQEC 2007, *European Conference on Lasers and Electro-Optics and the International Quantum Electronics Conference*. 17-22 June 2007, Munich, Germany.
19. D. Milanese, M. Vota, G. Liao, M. Ferraris, N. Coluccelli, S. Taccheo,
“Novel rare earth doped tellurite glasses for fiber lasers in the 2-micron wavelength region”.
Photonics West 2007, 20-26 January 2007, San Jose', U.S.A.
20. N. Coluccelli, G. Galzerano, P. Laporta, D. Parisi, A. Toncelli, M. Tonelli,
“CW diode-pumped Q-switched Tm:BaYF₃ laser at 1.9 μm ”.
EPS-QEOD Europhoton Conference, *Solid-State and Fiber Coherent Light Sources*, 10-15 September 2006, Pisa, Italy.
21. M. Vota, D. Milanese, Q. Chen, G. Liao, J. Xing, M. Ferraris, N. Coluccelli, S. Taccheo,
“Fabrication and characterization of novel Tm-doped tellurite glasses for single frequency fiber lasers in the 2- μm wavelength region”.
EPS-QEOD Europhoton Conference, *Solid-State and Fiber Coherent Light Sources*, 10-15 September 2006, Pisa, Italy.

OTHERS

2008 – present **Reviewer** for several scientific journals (Optics Letters, Optics Express, Applied Physics B, Applied Optics, etc)

PROFESSIONAL SOFTWARE KNOWLEDGE

- ZEMAX (Ray Tracing Optics Software Package). Level: professional.
Design of optics for diode pumping of solid-state laser systems. Design of aspheric optics. Ray Tracing and Wave Optics propagation, Sequential and Non-Sequential ray tracing.
- LASCAD (Laser Cavity Design Software Package). Level: professional.
Design of laser systems and laser cavities (continuous-wave, pulsed, parametric sources) by wave-optics propagator.

Milan, 12th of December 2018

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