Ilaria Cristiani - Curriculum Vitae

Ilaria Cristiani received the PhD in Electronics Engineering in 1998 from the University of Pavia. Since 1994, she spent three years at the Advanced Research Laboratories of the company Pirelli Cables & Systems in Milan, Italy, working on the exploitation of soliton propagation in high bit-rate transmission systems.
At present she is Associate Professor in Physics at the Department of Electrical, Computer, and Biomedical Engineering of the University of Pavia. Her teaching activities mainly regard classes of Physics and Photonics at the Engineering Faculty.
The principal scientific activity has been aimed at the experimental study of linear and nonlinear optical phenomena for applications in biophotonics and optical communication systems. She has co-authored about 80 papers (Scopus – h index 26), published in peer reviewed international journals and she contributed to several invited presentations at international conferences. IC is coauthor of four patent applications, one book, and she serves as reviewer for the most important international journals in the field of Physics and Photonics.

Main Research Projects
2014 European Projects FP7 – Nistas: Non-invasive screening of the status of the vascular system - UNIPV Proposer 2012 European project FP7 – “Fabulous: FDMA Access By Using Low-cost Optical Network Units in Silicon Photonics” - UNIPV Coordinator2012 Grant Cariplo “Optofluidic chips for the study of cancer cell mechanical properties and invasive capacities” - Coordinator2006 PRIN -2005- MIUR. “Development on nonlinear devices based on the Silicon-Germanium alloy” National Coordinator2006 Innesco, funded by CNISM- “Development of integrated fiber tweezers” Coordinator2006 EU FP6 project STREP IST-2005-034743 (2006-2010) "IOLOS - Integrated Optical LOgic and Memory using Ultrafast Micro-ring Bistable Semiconductor Lasers" - co-investigator
She participated also in the COST actions P11 “Physics of linear, nonlinear, and active photonic crystals” and MP0604 "Optical Micro-Manipulation by Nonlinear Nanophotonics".

Recent publications on peer review international journals (2010- 2019)
1. G. Nava, T. Yang, V. Vitali, P. Minzioni, I. Cristiani, F. Bragheri, R. Osellame, L. Bethge, S. Klussmann, E.M. Paraboschi, R. Asselta, T. Bellini, "Newtonian to non-newtonian fluid transition of a model transient network", Soft Matter, 14, 3288, 2018.
2. R. Marchetti, V. Vitali, C. Lacava, I. Cristiani, G. Giuliani, V. Muffato, M. Fournier, S. Abrate, R. Gaudino, E. Temporiti, L. Carroll, P. Minzioni, "Low-Loss Micro-Resonator Filters Fabricated in Silicon by CMOS-Compatible Lithographic Techniques: Design and Characterization" MDPI Applied Sciences, 7, 174, 2017
3. "Integrated Optofluidic Chip for Low-Volume Fluid Viscosity Measurement" MDPI Micromachines, 8, 65, 2017 - INVITED PAPER
4. R. Marchetti, V. Vitali, C. Lacava, I. Cristiani, B. Charbonnier, V. Muffato, M. Fournier, P. Minzioni, "Group-velocity dispersion in SOI-based channel waveguides with reduced-height" Optics Express, 25, 9761, 2017
5. R. Marchetti, C. Lacava, A. Khokhar, X. Chen, I. Cristiani, D.J. Richardson, G.T. Reed, P. Petropoulos, P. Minzioni, "High-efficiency grating-couplers: demonstration of a new design strategy" Scientific Reports, 7, 16670, 2017.
6. T. Yang, F. Bragheri, G. Nava, I. Chiodi, C. Mondello, R. Osellame, K. Berg-Sørensen, I. Cristiani, P. Minzioni "A comprehensive strategy for the analysis of acoustic compressibility and optical deformability on single cells" Scientific Reports, 6, 23946, 2016.

7. C. Lacava, M.A. Ettabib, I. Cristiani, J.M. Fedeli, D.J. Richardson, P. Petropoulos, "Ultra-Compact Amorphous Silicon Waveguide for Wavelength Conversion" IEEE Photonics Technology Letters, 28, 410, 2016.
8. M. Gazzetto, G. Nava, A. Zaltron, I. Cristiani, C. Sada, P. Minzioni, "Numerical and experimental study of optoelectronic trapping on Iron-doped Lithium Niobate substrate", MDPI Crystals 6, 123, 2016. - INVITED PAPER
9. T. Yang, P. Paiè, G. Nava, F. Bragheri, R. Martinez Vazquez, P. Minzioni, M. Veglione, M. Di Tano, C. Mondello, R. Osellame, I. Cristiani, "An integrated optofluidic device for single-cell sorting driven by mechanical properties", Lab on a Chip, 15, 5, 1262, 2015.
10. R. Martinez Vazquez, G. Nava, M. Veglione, T. Yang, F. Bragheri, P. Minzioni, E. Bianchi, M. Di Tano, I. Chiodi, R. Osellame, C. Mondello, I. Cristiani, "Optofluidic constriction chip for monitoring metastatic potential and drug response of cancer cells" Integrative Biology, 7, 477, 2015.
11. A. Bozzola, L. Carroll, D. Gerace, I. Cristiani, L.C. Andreani, "Optimising apodized grating couplers in a pure SOI platform to-0.5 dB coupling efficiency" Optics Express, 23, 16289, 2015.
12. G. Nava*, F. Bragheri, T. Yang, P. Minzioni, R. Osellame, I. Cristiani, K. Berg-Sørensen "All-silica microfluidic optical-stretcher with acoustophoretic prefocusing" Microfluidics and Nanofluidics, 19, 837, 2015.
13. T. Yang, G. Nava, P. Minzioni, M. Veglione, F. Bragheri, F.D. Lelii, R. Martinez Vazquez, R. Osellame, I. Cristiani, "Investigation of temperature effect on cell mechanics by optofluidic microchips", Biomedical Optics Express 6, 2991, 2015.
14. M.J. Strain, C. Lacava, L. Meriggi, I. Cristiani, M. Sorel, "Tunable Q-factor silicon microring resonators for ultra-low power parametric processes", Optics Letters, 40, 7, 1274, 2015.
15. L. Carroll, D. Gerace, I. Cristiani, L.C. Andreani 'Optimizing polarization-diversity couplers for Si-photonics: reaching the -1dB coupling efficiency threshold' Optics Express, 22, 14769, 2014.
16. C. Lacava, V. Pusino, P. Minzioni, M. Sorel, I. Cristiani "Nonlinear properties of AlGaAs waveguides in CW operation regime" Optics Express, 22, 5291, 2014.
17. M. Esseling, A. Zaltron,N. Argiolas, G. Nava, J. Imbrock, I. Cristiani, C. Sada,C. Denz 'Highly reduced iron-doped lithium niobate for optoelectronic tweezers' Applied Physics. B, Lasers and Optics, 113, 191, 2013.
18. C. Lacava, M.J. Strain, P. Minzioni, I.Cristiani, M. Sorel 'Integrated nonlinear Mach Zehnder for 40 Gbit/s all-optical switching' Optics Express, 21, 21587, 2013
19. G. Nava, P.Minzioni, I.Cristiani, N. Argiolas, M. Bazzan, M.V. Ciampolillo, G. Pozza, C. Sada , V. Degiorgio 'Photorefractive effect at 775?nm in doped lithium niobate crystals', Applied Physics Letters, 103, 031904, 2013
20. C. Lacava, P. Minzioni, E. Baldini, L. Tartara, J.M. Fedeli, I. Cristiani, 'Nonlinear characterization of hydrogenated amorphous silicon waveguides and analysis of carrier dynamics', Applied Physics Letters, 103, 21587, 2013
21. L. Carroll,D. Gerace,I. Cristiani, S. Menezo, L.C. Andreani 'Broad parameter optimization of polarization-diversity 2D grating couplers for silicon photonics', Optics Express, 21, 21556, 2013
22. P. Minzioni, G.Nava , I. Cristiani.,W. Yan, V. Degiorgio, 'Wide-band single-shot measurement of refractive indices and birefringence of transparent materials' Optics and Laser Technology, 50, 71, 2013
23. C Liberale , G. Cojoc, F. Bragheri, P. Minzioni, G. Perozziello, R. La Rocca, L. Ferrara, V. Rajamanickam, E. Di Fabrizio, I. Cristiani "Integrated microfluidic device for single-cell trapping and spectroscopy", Scientific Reports, 3, 1238, 2013
24. J. Matres, C. Lacava, G.C. Ballesteros, P. Minzioni, I. Cristiani, J.M. Fédéli, J. Martí, C.J. Oton, "Low TPA and free-carrier effects in silicon nanocrystal-based horizontal slot waveguides", Optics Express, 20, 23838, 2012.
25. N. Bellini, F. Bragheri, I. Cristiani, J. Guck, R. Osellame, G. Whyte, "Validation and perspectives of a femtosecond laser fabricated monolithic optical stretcher", Biomedical Optics Express, 3, 2658-68, 2012.

26. F. Bragheri, P. Minzioni, R. Vazquez Martinez, N. Bellini, P. Paiè, C. Mondello, R. Ramponi, I. Cristiani, R. Osellame, "Optofluidic integrated cell sorter fabricated by femtosecond lasers", Lab on a Chip, 12, 3779-3784, 2012.
27. A.Trita, C. Lacava, P. Minzioni, J.-P. Colonna, P. Gautier, J.-M. Fedeli, I. Cristiani, "Ultra-high four wave mixing efficiency in slot waveguides with silicon nanocrystals", Applied Physics Letters, 99, 191105, 2011
28. L. Ferrara, E. Baldini, P. Minzioni, F. Bragheri, C. Liberale, E. Di Fabrizio, I. Cristiani, "Experimental study of the optical forces exerted by a Gaussian beam within the Rayleigh range", Journal of Optics, 13, 075712, 2011.
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31. N. Argiolas, M. Bazzan, M.V. Ciampolillo, P. Pozzobon, C. Sada, L. Saoner, A.M. Zaltron, L. Bacci, P. Minzioni, G. Nava, J. Parravicini, W. Yan, I. Cristiani, V. Degiorgio, "Structural and optical properties of zirconium doped lithium niobate crystals", Journal of Applied Physics, 108, 093508, 2010.
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33. A.C. Busacca, S. Stivala, L. Curcio, P. Minzioni, G. Nava, I. Cristiani, G. Assanto, "Soft proton exchanged channel waveguides in congruent lithium tantalate for frequency doubling", Optics Express, 18, 5967-25972, 2010.
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V. Degiorgio, I. Cristiani, “Note di Fotonica”, Ed. Springer, Seconda edizione 2016 V. Degiorgio, I.Cristiani, “Photonics – A short course, Ed. Sprinter, Second edition 2016