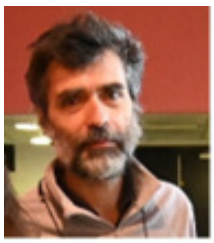
PERSONAL INFORMATION

Giuseppe Chirico



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Giuseppe.chirico@unimib.it
https://www.unimib.it/giuseppe-chirico

Sex M | Date of birth 14/08/1963| Nationality Italian

WORK EXPERIENCE

from 2005- to present

Full professor of Applied Physics

Università di Milano-Bicocca, Piazza dell'Ateneo Nuovo, 1, 20126, Milano (I)

- Research and teaching

Business or sector Education

from 1999 – to 2005

Associate professor of Applied Physics

Università di Milano-Bicocca, Piazza dell'Ateneo Nuovo, 1, 20126, Milano (I)

- Research and teaching

Business or sector Education

from 1991 to 1999

University researcher in Material Science

Università di Milano, Milano (I)

- Research and teaching assistant

Business or sector Education

from 1990 to 1991

Post-doc
European Molecular Biology Laboratory (EMBL), Outstation di Grenoble
Grenoble (F)
Business or sector Research and development

from 1994 to 1994

Visiting Researcher
LFD, Laboratory of Fluorescence Dynamics, University of Illinois at Urbana-Champaign, USA
Urbana-Champaign, IL
Business or sector Research and development

EDUCATION AND TRAINING

from 1986- to 1990

PhD candidate in Physics and Astronomy

Università di Milano, Milano (I)

- Experimental Biophysics, Light Scattering and fluorescence spectroscopy, PhD defense and title in January 1991.

from 1981- to 1986

Batchelor in Science and Master in Physics (Laurea degree in Physics)

Università di Milano, Milano (I)

- Physics: theoretical physics, spectroscopy, solid state Physics, experimental Physics

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C1	C2	C1

French	B2	B2	B1	B1	A2
German	A2	B1	A2	A2	A2

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills good communication skills gained through my experience as university lecturer and as speakers at international conferences and in international panels.

Organisational / managerial skills
-currently responsible for a team of 10 people: group of Biophotonics at the University of Milano-Bicocca, Milano, I.
- director of the Doctorate School in Physics and Astronomy (2009-2016), Università di Milano-Bicocca.
- member of the Scientific panel of the Società Italiana di Biofisica Pura e Applicata (Italian society of applied and pure Biophysics, 2003-2006.
-- Scientific supervisor of LABEX, a laboratory in Modern Physics dedicated to high school pupils. 2009-2016.
- member of the Steering Committee of the Biophysics section (B) of the Italian Institute of Material Science (INFM), 1998-2002
- member of the doctorate school advisory committee, University of Milano-Bicocca, 2001-present

Job-related skills
- Good experience in project managing (more than 5 projects as principal investigator and a FET project H2020.

Computer skills
- Good level of programming in Fortran, C, python.

Other skills
- Piano player

Driving licence
- B

ADDITIONAL INFORMATION

Publications
List of relevant ones

https://orcid.org/0000-0001-6578-6460
195 publications
3739 citations
H 31 (Scopus)

- G.Chirico, J.Langowski, "Calculating hydrodynamic properties of DNA through a second-order Brownian Dynamics algorithm. II"; **Macromolecules** 1992 25, 769-775.

- G.Chirico, U.Kapp, K.Klenin, W.Kremer, J.Langowski, "Ten microseconds in the life of a superhelix"; **J.of Mathematical Chemistry**, 1993 13, 33-43.

- G.Chirico, J.Langowski, "Kinetics of DNA supercoiling studied by Brownian Dynamics simulation", **Biopolymers**, 1994 34, 415-433.

- M.Collini, G. Chirico, G. Baldini, M.E.Bianchi:"Conformation of short DNA fragments by modulated fluorescence anisotropy", **Biopolymers** , 1995 36, 211-225.

- G. Chirico, J.Langowski, "Brownian Dynamics Simulations of plasmid DNA with bent sequences**", Biophysical Journal**, 1996 **71** 955-971.

- G.Baldini, S.Beretta, G.Chirico, H.Franz, E. Maccioni,P. Mariani,F. Spinozzi, "Salt induced association of beta-lactoglobulin studied by salt light and X-ray scattering", **Macromolecules**, (1999) 32:6128-6138.

- S. Bettati, S. Benci, B. Campanini, S. Raboni, G. Chirico, S. Beretta, K. D. Schnackerz, T. L. Hazlett, E. Gratton and

	A. Mozzarelli, "Role of Pyridoxal 5'-phosphate in the structural stabilization of O-acetylserine sulfhydrylase", **J.Biol.Chem**, (2000) 275(51): 40244–40251. - Zanoni, I., Ostuni, R., Capuano, G., Collini, M., Caccia, M., Ronchi, A.E., Rocchetti, M., Mingozzi, F., Foti, M., Chirico, G., Costa, B., Zaza, A., Ricciardi-Castagnoli, P., Granucci, F.. CD14 regulates the dendritic cell life cycle after LPS exposure through NFAT activation. **Nature.** (2009) 460: 264-268. - Chirico G. Bioimaging Protein watching. **Nature Phot.** (2009) 3: 81-82 - P. Pallavicini, G. Chirico, M. Collini, G. Dacarro, A. Donà, L. D'Alfonso, A. Falqui, Y. Diaz-Fernandez, S. Freddi, B. Garofalo, A. Genovese, L. Sironi and A. Taglietti. Synthesis of branched Au nanoparticles with tunable near-infrared LSPR using a zwitterionic surfactant **Chem. Commun.** (2011) 47: 1315-1317. - Pallavicini, P.;Donà, A.; Casu A.,Chirico, G.;Collini, M.; Daccarro G.;Falqui, A.; Milanese C.; Sironi L.; Taglietti A. Triton X-100 for three-plasmon gold nanostars with two photothermally active NIR (near IR) and SWIR (short-wavelength IR) channels**. Chem. Commun.** (2013) 49: 6256-6267. - Zanoni I, Spreafico R, Bodio C, Di Gioia M, Cigni C, Broggi A, Gorletta T, Caccia M, Chirico G, Sironi L, Collini M, Colombo, Garbi, Granucci F.. IL-15 cis Presentation Is Required for Optimal NK Cell Activation in Lipopolysaccharide-Mediated Inflammatory Conditions. ***Cell Reports*** (2013) 4(6): 1235 – 1249. - Sironi, Laura; Bouzin, Margaux; Inverso, Donato; D'Alfonso, Laura; Pozzi, Paolo; Cotelli, Franco; Guidotti, Luca G; Iannacone, Matteo; Collini, Maddalena; Chirico, Giuseppe, In vivo flow mapping in complex vessel networks by single image correlation. **Scientific reports**. (2014) 4: 7341. - Mantecca, P., Moschini, E., Bonfanti, P., Fascio, U., Perelshtein, I., Lipovsky, A., et al. (2015). Toxicity Evaluation of a New Zn-doped CuO Nanocomposite with Highly Effective Antibacterial Properties. **Toxicological Sciences**.(2015) 146(1):16-30. - Pallavicini, P.; Basile, S.; Chirico, G.; et al. Monolayers of gold nanostars with two near-IR LSPRs capable of additive photothermal response. **Chemical Communications.** (2015) 51: 12928-12930. - F. Radaelli, L. D'Alfonso, M. Collini, F. Mingozzi, L. Marongiu, F. Granucci, I. Zanoni, G. Chirico & L. Sironi. µMAPPS: a novel phasor approach to second harmonic analysis for in vitro-in vivo investigation of collagen microstructure. **Scientific Reports** (2017) 7: 17468. - Scodellaro, Riccardo; Bouzin, Margaux; Mingozzi, Francesca; D'Alfonso, L; Granucci, F.; Collini, M.; Chirico, G.; Sironi, L.Whole-Section Tumor Micro-Architecture Analysis by a Two-Dimensional Phasor-Based Approach Applied to Polarization-Dependent Second Harmonic Imaging. **Frontiers in oncology.** 2019:9 Article Number: 527 - Bouzin, M.; Marini, M.; Zeynali, A.; Borzenkov, M.; Sironi, L.; D'Alfonso, L.; Mingozzi, F.; Granucci, F.; Pallavicini, P.; Chirico, G.; Collini, M.Photo-activated raster scanning thermal imaging at sub-diffraction resolution. **Nature Communications** 10: 5523 (2019) - Zeynali, Amirbahador; Marini, Mario; Chirico, Giuseppe; Bouzin, M.; Borzenkov, M. ; Sironi, L.; D'Alfonso, L.; Pallavicini, P.; Cassina, V.; Mantegazza, F.; Granucci, F.; Marongiu, L. ; Polli, D.; De la Cadena, A.; Collini, M. Multiphoton Fabrication of Proteinaceous Nanocomposite Microstructures with Photothermal Activity in the Infrared. **Advanced Optical Materials** 2020, 8(13): 2000584 - Marini, M., Bouzin, M., Sironi, L., (...), Collini, M., Chirico, G.A novel method for spatially resolved thermal conductivity measurement by super-resolution photo-activated infrared imaging. **Materials Today Physics.** 2021, 18,100375. - Marini, M., Zeynali, A., Collini, M., ...Cassina, V., Chirico, G. Proteinaceous microstructure in a capillary: a study of non-linear bending dynamics. Lab on a Chip, 2022, 22(24), pp. 4917–4932 -Conci, C., Jacchetti, E., Sironi, L., ...Chirico, G., Raimondi, M.T. A Miniaturized Imaging Window to Quantify Intravital Tissue Regeneration within a 3D Microscaffold in Longitudinal Studies- Advanced Optical Materials, 2022, 10(7), 2101103
Master – PhD theses	Master students (selection): more than 45 theses supervised

	--- PhD Student supervision (univ. Milano or Univ. Milano-Bicocca): 9 theses Univ. Milano: S. Beretta, “Light scattering measuerments from hemoglobin solutions: charge effects”; 2001; Univ. Milano-Bicocca: F. Cannone, “Single protein fluorescence fluctuations as fingerprints of GFP internal dynamics”, 2005; M. Caccia, “Non linear microspectrometry of Biological Tissues”, 2007; S.Daglio “GFP photoswitchable mutants for intensity modulation imaging” 2012; V.Quercioli “FCS of photo-activable GFP mutants”, 2008; P. Pozzi “Fluorescence TPE microscopy with an holographic microscope”, 2015; L. Sironi “Nanoparticles for in-vitro and in-vivo biosensing and imaging”,2011; N.G.Ceffa “Microfluidic flow mapping with spim-ics”, 2017; B. Zeybali, 2020, PhD in Physics and Astronomy, "Two-photon assisted direct laser writing of proteinaceous microarchitectures containing plasmonic nanoparticles;characterization and optimization"
Presentations Selection, invited	1. Congresso della Società Italiana di Fisica, Verona, 1989. 2. Congresso della societa' Italiana di Biofisica pura e applicata, Genova, settembre 1990. 3. Advances in Biomolecular Simulations, International Conference, Obernai (F), 1991. 4. Laser Application in Life Science, LALS 96 Agosto 1996, Yuvaskula (FL). 5. Congresso della societa' Italiana di Biofisica pura e applicata, Genova, settembre 1996. 6. Congresso della Società Italiana di Fisica, Verona, 1996. 7. Workshop "Structure and Dynamics of Polyelectrolytes", Scuola Normale superiore di Pisa, 1997. 8. Congresso della societa' Italiana di Biofisica pura e applicata, Genova, settembre 1998. 9. Laser Application in Life Science, LALS-98. Agosto 1998, Bratislava (Slovacchia). 10. Congresso dell'Istituto Nazionale per la Fisica della Materia, Catania 1999. 11. Congresso della Societa' Italiana di Fisica, Pavia, settembre 1999. 12. Congresso della Societa' Italiana di Fisica, Palermo, settembre 2000. 13. Single Particle Methodologies in Biophysics and Biotechnology, Workshop, Firenze, settembre 2001. 14. Congresso della Societa' Italiana di Fisica, Sassari, settembre 2002. 15. Focus on Microscopy: Genova aprile 2003. 16. Photonics West, San Jose, Gennaio 2004. 17. PROMELAB, 1st International Workshop on Expression, Function and Structure of Membrane Proteins, Firenze, June, 2006. 18. G. Chirico, 36th Course of INTERNATIONAL SCHOOL OF BIOPHYSICS, “Fluctuation Spectroscopy for biological Tissues”, 2008 19. G. Chirico, “Tracking single gfp proteins through unfolding pathways”in Workshop “Theory, Modeling and Evaluation of Single Molecule Measurements”, Leiden, April, 2007. 20. G. Chirico, XI SCHOOL OF PURE AND APPLIED BIOPHYSICS, Venice (I), 2007. “Single Molecule Spectroscopy: principles and applications”, 2007. 21. G. Chirico, “In-vitro and in-vivo detection of p53 by fluorescence lifetime on a hybrid FITC-gold nanosensor”, Photonics West, SPIE conference on “”Nanoscale Imaging, Sensing, and Actuation for Biomedical Applications VII, SPIE BiOS, San Francisco, California, United States, 2010. 22. G. Chirico, Organic-metal Lifetime based bio-sensors, Brazilian Physics Meeting, 2011. 23. G. Chirico, International Conference on Nanotechnology in Medicine (NanoMED), University College London in London, “Branched Gold Nanoparticles for Thermal Treatments of Cells", 2012. 24. G. Chirico, “Structured illumination fluorescence correlation spectroscopy for velocimetry in Zebrafish embryos” SPIE BiOS, Dynamics and Fluctuations in Biomedical Photonics X, San Francisco, California, United States, 2013. 25. G. Chirico, Nanomedicine Symposium, European Center for Nanomedicine, CEN Politecnico di Milano: “Cross-correlation image microscopy for flow mapping in biomedical studies”, 2014. 26. G. Chirico. Congresso della Societa’ nazionale di Fisica, Pisa, Settembre 2014, “Fluorescence Cross-Correlation Spectroscopy for Flow Mapping” 2014. 27. G. Chirico, SIBPA,Congresso Nazionale della Società di Biofisica Pura ed Applicata, “CCD Based Fluorescence Cross-Correlation Spectroscopy for In-vivo Blood Velocimetry.”, Palermo, 2014. 28. G. Chirico, SPIE, BIOS: biophotonics, biomedical optics, and imaging conference, Munich, “Single image correlation for blood flow mapping in complex vessel networks”, 2015. 29. G. Chirico, “Photothermal effect of gold nanostars inkjet-printed on coated paper substrate under near infrared irradiation”, SPIE Photonics Europe, Brussel, 2016. 30. G. Chirico, SIBPA, Società Italiana di Biofisica Pura e Applicata, Cortona, “Inkjet Printed Gold Nanostar Patterns for Photothermal applications in life science”, 2016. 31. G. Chirico, Congresso della Società Italiana di Fisica, SIF, Trento, “Image Correlation Microscopy for flow mapping in-vivo”, 2017 32. G.Chirico, 7th EOS optical meeting, Capri, “3D Flow Field Mapping in Microfluidic Devices by means of Spatio-temporal Image Correlation Analysis”, 2017 33. G.Chirico, Symposium in memoriam Jörg Langowski, 12 October 2017, DKFZ Heidelberg, Germany, “Jiggling and twisting as a DNA superhelix”, 2017 34. G. Chirico, Photo-Activated Thermal Imaging at Sub-Diffraction Resolution. SPIE 2019, Optical Metrology conference (Munich, D).

	35. - G. Chirico, Micro-Mapps: a phasor approach to the analysis of collagen microstructure in vitro and in vivo by means of second harmonic generation microscopy. “Nanoengineering for Mechanobiology”, Workshop, CNR, March 2018, (Camogli,I). 36. G.Chirico, Thermal imaging for Medicine and biotechnologyOptical Metrology, SPIE conference, Munich, april 2019. 37. G. Chirico, “Multiphoton fabrication of proteinaceous nanocomposite microstructures with Photothermal activity in the infrared”, NINE2021 the 4th INTERNATIONAL CONFERENCE ON NANOTECHNOLOGY BASED INNOVATIVE APPLICATIONS FOR THE ENVIRONMENT, Salerno, march 2021. 38. G.Chirico, “In2Sight: a FET projecto on invivo imangin of biomaterial reaction”, SPIE Europe, Munich, April 2021.
Projects as PI or co-PI	- 2021-25. In2Sight, H2020-FETOPEN-2018-2020, GA NUMBER 964481, 2021-25, Principal Coordinator (3.5 ML) -2017, I-Nano: A multidisciplinary network for smarter bioimaging, competitive funds, Università di Milano-Bicocca, 2017 -2017, ZCube, Zambon open accelerator program: Photo-thermally active patches with controlled on demand drug release, 2017 -2010, Coherent Vibrational Microscopy for Biomedicine, Banca del Monte Foundation (Pavia, I), 2010. -2010-2014, Raman Microscopy for Biomedical Applications, Regione Lombardia (I). -2008-2012, Construction and read out of 2D networks of fluorescent molecules by AFM: towards molecular optical memories, Cariplo Foundation (2008), Italy. -2012-2014, Gold nanorods (NR) and asymmetric nanoparticles (ANP) capped with a biocompatible polymer bearing binding groups for molecules and metal cations: pharmacological and thermal antimicrobial action activated by near-IR irradiation , Cariplo Foundation (2012) , Italy. -2008-2012, ENCITE: European Network for Cell Imaging and Tracking Expertise (FP7: Grant agreement No: 201842, EU), local PI, unit Milano-Bicocca. -2005, Two-photon excitation microscope for in-vivo imaging, Large Infrastructure fundings of the University of Milano-Bicocca, 2005. - 2005, Spectral decomposition of two-photon microscopy images, Banca del Monte Foundation (Pavia, I), 2005. -2000-2001. INFM (Istituto Nazionale per la Fisica della Materia) funding, PAIS, for the project: "Structural and Dynamic studies of proteins by Single Molecule Spectroscopies". -2001-2002. INFM (Istituto Nazionale per la Fisica della Materia) funding, PAIS, for the project: "Conformational Dynamics of single molecules by spectroscopy and manipulation". - 2003-2005. PRIN MIUR, Physics: "Nanocapsules as a biomimetic system for the study of the molecular crowding by means of advanced spectroscopy and microscopy techniques".
Conferences	**Organization of Congresses and workshops.** -School on confocal and 2-photons micro-spectroscopy, 2006, Milano; -Workshop: Visualizing Biological Function: Confocal Spectroscopy/Microscopy. 2007, Milano - Scientific Committee member of the European Biophysical Societies’ Association (EBSA) Congress, Genova, 2009. - Director or the Symposium in Honour of Giancarlo Baldini, “From genomics to proteomics: the challenge of in-vivo dynamic studies. Experimental and theoretical approaches”. in EBSA congress 2009, Genoa. - Scientific Committee member of the XX Congresso Nazionale della Societa' di Biofisica Pura e Applicata, Arcidosso (GR), 2010 - Director of the VI School Of Pure And Applied Biophysics on Multimodal Methods for Cell Imaging and Tracking Location: Venice, Italy, 2012. - Scientific Committee member of the XXI, Congresso Nazionale della Societa' di Biofisica Pura e Applicata, Ferrara (I) 2012 - Scientific Committee member of the Workshop on Medical Imaging, Varenna (I), 2015. - member of the program committee of the SPIE (internation. Soc. Opt. phot.) congress on Optical Metrology, Munich, 2017, - Co-director of the International School of Nanomedicine 3rd Course: “Nanofluidics, Nanoimaging and Nanomanipulation”, Ettore Majorana Foundation and Centre for Scientific Culture, April 2018. - member of the program committee of the SPIE (internation. Soc. Opt. phot.) congress on Optical Metrology, Munich, 2019, - International School, " Quantitative analysis of optical imaging for Medicine and Biophysics" , Venice 18-22 Jan 2021 (held on-line), SIBPA, Institute Pasteur, CNR-ISASI.
Honours and awards	Innovation Award 2015, University of Milano-Bicocca. In collaboration with Dr. P. Pozzi, Dr. J. Mapelli, Dr. D. Gandolfi and Prof. E. D'Angelo.
Patents	- “Dispositivo Medico Impiantabile”, Raimondi M.T., Cerullo G., Conci C., Zandrini T., Osellame R., Chirico G. prior art 21/12/2017, Italian patent n. 102017000147857, registered on : 6 March 2020 - "Implantable Medical device", Raimondi M.T., Cerullo G., Conci C., Zandrini T., Osellame R., Chirico

	G. , US 2020/0337824 A1, 29 Oct 2020. - "Film polimerici contenenti nanoparticelle con effetto fototermico e loro applicazione come cerotti termici", Chirico Giuseppe, Collini Maddalena, Borzenkov Mykola, Pallavicini Piersandro. patent n. brevetto N. 102018000004053, 10/04/2020
Memberships	G.C. is member of the Society of Photo-Optical Instrumentation Engineers G.C. is member of the editorial boards of the following journals: - CURRENT BIONANOTECHNOLOGY (ISSN: 2213-5294) 2016-2020 - PLOS ONE (ISSN: 1932-6203) 2010- - BIOMEDICAL ENGINEERING ONLINE (ISSN: 1475-925X) 2008- - Nanomaterials, MDPI, (ISSN 2079-4991), 2021-
References	Enrico Gratton, LFD, University of California, Irvine (CA).

Milano, 14 marzo 2023