Curriculum Vitae

Francesco Banfi

Personal Details

CV senza dati sensibii ai fini della pubbblicazione

Language proficiency

English, French and Italian.

Education

2020	Italian habilitation for Full Professor in the disciplinary sector Experimental Condensed Matter Physics.
2018	French habilitation for Professeur des Universités (Full Professor) in the disciplinary sectors Diluted Matter and Optics and Condensed Matter and Materials.
2017	Italian habilitation for Associate Professor in the disciplinary sector Experimental Condensed Matter Physics.
2011	Italian habilitation for Centro Nazionale delle Ricerche.
2010	French habilitation for Maître de Conference in the disciplinary sectors Diluted Matter and Optics, Condensed Matter and Materials.
2005-07/2007	PostDoc (Assistant A3) at the Département de Physique de la Matière Condensée, Université de Genève, for research and teaching assignment.
02-2004/11-2004	PostDoc experience. Contracted jointly by Univerità Cattolica in Brescia and Lawrence Berkeley National Laboratory to investigate *Transverse emittance and Quantum Yield of photocathodes under femtosecond radiation pulses* under Berkeley Lab Subcontract No. 6710692. Contract signed with Direzione di sede - Università Cattolica Brescia.

4/2004	Ph.D. at the Dept. of Physics 'A. Volta', Università di Pavia, Pavia, Italy. Thesis: *Aspects of Electron Dynamics in Low Dimensional Systems Based on Metal Surfaces and Semiconductor Heterojunctions*. Supervisor: Prof. Giorgio Guizzetti. Promotor: Prof. Fulvio Parmigiani. The project was accomplished at the NEST Lab-Scuola Normale Superiore (Pisa) and at the ELPHOS Lab-Università Cattolica (Brescia).
12/1999	Graduated in Physics at the Università di Pavia, Pavia. Final grade: 110/110 cum Laude. Thesis: *$Al_xGa_{1-x}As$-GaAs Gaussian Superlattice: electronic and transport properties*. Supervisor: Dr. Vittorio Bellani. The project was accomplished jointly at the Physics Department 'A. Volta', Università di Pavia (Pavia), and at the Departamento de Fisica de Materiales, Universidad Complutense (Madrid).

Working Experience

2021- 2023	Délégation CNRS for a two semesters period.
since 09/2018	Full Professor of Physics (Professeur des Universités) at Université Claude Bernard Lyon 1, Villeurbanne, France. Position equivalent in Italy to a full professor (professore ordinario) as per the Correspondence Tables between Italian and foreign academic positions according to the Decree of the Ministry (D.M.) September 2016, n. 662.
04/2017-31/08/2018	Ricercatore tempo determinato A (L240/2010) at the Dipartimento di Matematica e Fisica - Università Cattolica.
9/2016-10/2016	Chercheur invité CNRS at Institut Lumière Matière - Université Claude Bernard Lyon 1, Villeurbanne, France.
04/2011-03/2017	Ricercatore tempo determinato (L230/2005) at the Dipartimento di Matematica e Fisica - Università Cattolica.
12/2010-02/2011	Chercheur invité CNRS at Laboratoire de Spectrométrie lonique et Moléculaire - UMR 5579, Université Claude Bernard Lyon 1, Villeurbanne, France.
07/2007-03/2011	Ricercatore tempo determinato (Diritto privato) at the Dipartimento di Matematica e Fisica - Università Cattolica in Brescia.
2005-07/2007	PostDoc at the Département de Physique de la Matière Condensée, Université de Genève, for research and teaching assignment.

02-2004/11-2004	Contracted jointly by Univerità Cattolica in Brescia and Lawrence Berkeley National Laboratory to investigate *Transverse emittance and Quantum Yield of photocathodes under femtosecond radiation pulses* under Berkeley Lab Subcontract No. 6710692. Contract signed with Direzione di sede - Università Cattolica Brescia.
2000	Contracted by the Physics Department 'A. Volta', Università di Pavia, to investigate the 'Optical and transport properties of low dimensional systems based on GaAs-GaAlAs Heterostructures'.
2000	Contracted by the company Financial and Mathematical Modeling to develop mathematical models for the financial market.

Teaching Experience

Courses taught:

Teaching the course of **Communication in Physics** at the Master in Physics, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2023-2024, 2024-2025.

Teaching the course of **Condensed matter physics problem session** at the Master in Physics, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2023-2024, 2024-2025. Course held in **English**.

Teaching the course of **Biophysics lab** at the Medical school, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2023-2024, 2024-2025.

Teaching the course of **Thermodynamics and heat transfer laboratory session**, bachelor in Physics, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2023-2024, 2024-2025.

Teaching the course of **Laser's fundamentals** at the Master Science de la Matière, École Normale Supérior, Lyon, France. Academic Year: 2019-2020, 2020-2021, 2021-2022, 2022-2023. Course held in **English**.

Teaching the course of **Statistical Thermodynamics problems session** at the Master Science de la Matière, École Normale Supérior, Lyon, France. Academic Year: 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023. Course held in **English**.

Teaching the course of **Physics fundamentals laboratory session**, bachelor in Life and Earth Sciences, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025.

Teaching the course of **Physics fundamentals problem session**, bachelor in Life and Earth Sciences, Université Claude Bernard Lyon 1, Villeurbanne, France.

Academic Year: 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025.

Teaching the course of **General Physics Electricity and Optics Lab**, bachelor in Physics, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2019-2020, 2020-2021.

Teaching the course of **General Physics problems session**, bachelor in Physics, Université Claude Bernard Lyon 1, Villeurbanne, France. Academic Year: 2019-2020, 2020-2021.

Teaching the course of **Point of view on new topics in physics** at the Master Science de la Matière, École Normale Supérior, Lyon, France. Academic Year: 2018-2019. Course held in **English**.

Teaching the course of **Electromagnetism** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2017-2018.

Teaching the course of **Electromagnetism problems session** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2017-2018.

Teaching the course of **Advanced Solid State Physics** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2013-2014, 2014-2015, 2015-2016, 2016-2017. Course held in **English**

Teaching the course of **Advanced Solid State Physics problems session** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2014-2015, 2015-2016, 2016-2017. Course held in **English**

Teaching the course of **Solid state Physics 2** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2008-2009, 2009-2010.

Teaching the course of **Coherent Optics** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2004-2005, 2007-2008, 2009-2010, 2010-2011, 2011-2012.

Teaching the exercise session for the course **Optics Lab** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2014-2015, 2015-2016, 2016-2017, 2017-2018.

Teaching the course of **Scientific Experimentation** at the Specialisation School of Medical Physics, Faculty of Medicine, Università Cattolica, Roma, Italy. Academic Year: 2013-2014.

Teaching the course of **Optics** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Acedemic Year: 2012-2013.

Teaching the exercise session for the course **Optics** at the Dipartimento di

Matematica e Fisica, Università Cattolica, Brescia, Italy. Acedemic Year: 2012-2013.

Teaching the course of **Electronics Lab** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2010-2011, 2011-2012, 2012-2013.

Teaching the exercise session for the course **Electronics Lab** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2011-2012, 2012-2013.

Teaching the course of **Newtonian Mechanics 2** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2008-2009, 2009-2010.

Teaching the exercise session for the course of **Newtonian Mechanics 1** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2008-2009.

Teaching in **French** and/or **English** the exercise session for the **Thermodynamics** course (semester course) at the Département de Physique de la Matière Condensée, Université de Genève, Switzerland. Academic Year: 2005-2006, 2006-2007.

Teaching the course of **Quantum Electronics** at the Dipartimento di Matematica e Fisica, Università Cattolica, Brescia, Italy. Academic Year: 2003-2004.

Supervised Bachelor and Master Thesis:

Experimental assessment of the Kapitza resistance at the CNT- water interface.,
M. Vittucci, Master Thesis, La Sapienza Roma Università , Academic Year 2022-2023. Tutor: Prof. C. Sibilia. Co-tutor: Prof. F. Banfi and Dr. P. Maioli

Unraveling lipid droplets formation mechanisms by confocal dual-channel imaging of intracellular polarity,
Giada Bianchetti, Master Thesis, Università Cattolica Brescia, Academic Year 2016-2017. Tutor: Prof. M. De Spirito. Co-tutor: Dr. F. Banfi

Transition-Metal Oxide Heterostructure as Platform for emergent quantum Phenomena,
P. Franceschini, Master Thesis, Università Cattolica Brescia, Academic Year 2016-2017. Tutor: C. Giannetti. Co-tutor: Dr. F. Banfi

Ultrafast processes in nanoengineered functional materials,
A. Tognazzi, Master Thesis, Università Cattolica Brescia, Academic Year 2016-2017. Tutor: Dr. F. Banfi and Dr. C. Giannetti

Non-equilibrium dynamics in disordered electron-doped copper oxides,
F. Armanti, Master Thesis, Università Cattolica Brescia, Academic Year 2015-2016. Tutor: Dr.C. Giannetti. Co-tutor: Dr. F. Banfi

Optics and Mechanics of Individual Gold Nano-Disks,

S. Calati, Master Thesis, Università Cattolica Brescia, Academic Year 2015-2016. Tutor: Dr.C. Giannetti. Co-tutor: Dr. F. Banfi

Opto-acoustic characterization of Ag thin films grown by Supersonic Cluster Beam Deposition,
M. Ghirardelli, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2014-2015. Tutor: Dr. F. Banfi. Co-tutor: Dr. S. Peli

Cluster Analysis Techniques for Single Nano-object Time-Resolved Optical Experiments,
A. Ronchi, Master Thesis, Università Cattolica Brescia, Academic Year 2014-2015. Tutor: Dr. F. Banfi. Co-tutor: Dr. S. Peli

Dynamics of the Symmetry Breaking in ordered phases,
M. Gandolfi, Master Thesis, Università Cattolica Brescia, Academic Year 2012-2013. Tutor: Dr. G. Ferrini. Co-tutor: Dr. F. Banfi

Temporal characterization of short laser pulses in microscopy,
F. Medeghini, Master Thesis, Università Cattolica Brescia, Academic Year 2012-2013. Tutor: Dr. F. Banfi. Co-tutor: Dr. G. Ferrini

Generazione di seconda armonica in vetri nanostrutturati mediante microscopia ottica,
P. Abrami, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2012-2013. Tutor: Dr. G. Ferrini. Co-tutor: Dr. F. Banfi

Termomeccanica impulsiva di un singolo nanodisco,
A. Ronchi, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2012-203. Tutor:Dr. F. Banfi . Co-tutor: Dr. G. Ferrini

Time resolved Microscopy on nanostructured materials,
A. Sterzi, Master Thesis, Università Cattolica Brescia, Academic Year 2011-2012. Tutor: Dr. F. Banfi. Co-tutor: Dr. G. Ferrini

Time and frequency resolved optical spectroscopy on Hg based high-Tc superconductors,
S. Mor, Master Thesis, Università Cattolica Brescia, Academic Year 2011-2012. Tutor: Dr. C. Giannetti. Co-tutor: Dr. F. Banfi and Dr. G. Ferrini

Generation and Detection of Terahertz pulses for time-domain spectroscopy,
E. Rampi, Master Thesis, Università Cattolica Brescia, Academic Year 2011-2012. Tutor: Dr. C. Giannetti. Co-tutor: Dr. F. Banfi.

Time-resolved optical microscopy on a single metallic nanodisk,
F. Medeghini, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2011-2012. Tutor: Dr. Francesco Banfi. Co-tutor: Dr. Gabriele Ferrini.

Surface sensitive time-resolved evanescent wave optical spectroscopy,
N. Nembrini, Master Thesis, Università Cattolica Brescia, Academic Year 2010-2011. Tutor: Dr. G. Ferrini. Co-tutor: Dr. F. Banfi.

Feasibility study of a time-resolved optical microscopy based on the ASOPS technique,
A. Canteri, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2010-2011. Tutor: F. Banfi. Co-tutor: Dr. C. Giannetti

Photoexcited states dynamics in cuprates superconductors,
S. Mingotti, Master Thesis, Università Cattolica Brescia, Academic Year 2010-2011. Tutor: Dr. C. Giannetti. Co-tutor: Dr. Francesco Banfi.

Dynamic of a model system for a neuronal network model of the visual cortex exposed to complex visual stimuli,
S. Cavallari, Master Thesis, Università Cattolica Brescia, Academic Year 2010-2011. The thesis work has been performed at the Italian Institute of Technology, Genova Italy. Tutor: Dr. Francesco Banfi. Co-tutors: Prof. S. Panzeri and Dr. A. Mazzoni.

Resonant and angle-resolved photoemission investigation of the electronics states of $LaAlO_3/SrTiO_3$,
G. Salvinelli, Master Thesis, Università Cattolica Brescia, Academic Year 2009-2010. Tutor: Prof. L. Sangaletti. Co-tutor: Dr. Francesco Banfi.

Time-resolved optical investigation of the thermo-mechanical dynamics in nano-aggregates,
A. Lombardi, Master Thesis, Università Cattolica Brescia, Academic Year 2009-2010. The thesis work has been performed both in Brescia and at Universitè Lyon 1. Tutor: Dr. Francesco Banfi. Co-tutor: Prof. Natalia Del Fatti.

Fabrication and time-resolved optical investigation of hypersonic phononic crystals,
M. Travagliati, Master Thesis, Università Cattolica Brescia, Academic Year 2008-2009. The thesis work has been performed both at Elphos Labs in Brescia and NEST Labs-Scuola Normale, Pisa. Tutor: Dr. Francesco Banfi. Co-tutor: Dr. Pasqualantonio Pingue.

Proprietà elettroniche di interfacce $LaAlO_3$ - $SrTiO_3$,
D. Visentin, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2009-2010. Tutor: Prof. Luigi Sangaletti. Co-tutor: Dr. Francesco Banfi..

Studio di un sensore molecolare basato su onde acustiche di superficie in materiali nanostrutturati,
E. Zagato, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2008-2009. Tutor: Dr. Francesco Banfi. Co-tutor: Dr. Gabriele Ferrini.

Studio di fattibilità per una tecnica completamente ottica per le misure di nanocalorimetria ,
F. Pressacco, Master Thesis, Università di Trieste, Academic Year 2007-2008. Tutor: Prof. Fulvio Parmigiani. Co-tutor: Dr. Francesco Banfi.

Struttura elettronica locale e ferromagnetismo in composti a base di TiO_2 rutilo: dai cristalli singoli alle interfacce,
F. Federici Canova, Master Thesis, Università Cattolica Brescia, Academic Year 2006-2007. Tutor: Prof. Luigi Sangaletti. Co-tutor: Dr. Francesco Banfi.

Caratterizzazione Strutturale e Suscettività Magnetica di Monocristalli Superconduttori di $Bi_2Sr_2Ca_1Cu_2O_{8+\delta}$,
M. Cesaretti, Bachelor Thesis, Università Cattolica Brescia, Academic Year 2004-2005. Thesis work performed at the Université de Genève. Tutor: Dr. Gabriele Ferrini. Co-tutor: Dr. Francesco Banfi.

Supervised Ph.D Thesis:

A multi-technique approach to nanoscale heat transfer,
Ph.D candidate Ms. A. Colosimo. Thesis period: 01-11-2020 to 30-06-2025. double doctoral degree between Ecole Doctorale de Physique et Astrophysique de Lyon and PhD in Nanoscience-Scuola Normale Superiore di Pisa. Supervisor: Prof. Dr. Francesco Banfi, co-supervisor: Prof. Dr. Natalia Del Fatti (Université Claude Bernard Lyon 1); Supervisor: Dr. Francesco Rossella, co-supervisor: Prof. Dr. Fabio Beltram (Scuola Normale Superiore di Pisa)

Ultrafast energy trasnsients at the nanoscale,
Ph.D candidate Mr. M. Diego. Thesis period: 01-10-2019 to 12-12-2022. Ecole Doctorale de Physique et Astrophysique de Lyon. Supervisor: Prof. Dr. Francesco Banfi, co-supervisor: Prof. Dr. Natalia Del Fatti (Université Claude Bernard Lyon 1)

Aspects of ultrafast thermomechanics at the nanoscale,
Dr. M. Gandolfi. Thesis period: 01-07-2015 to 30-08-2019. Joint supervision between Università Cattolica (Italy) and KU Leuven (Belgium). Supervisor: Prof. Dr. Francesco Banfi (Université Claude Bernard Lyon 1 and Università Cattolica), Prof. Christ Glorieux (KU Leuven), co-supervisor: Prof. Dr. Gabriele Ferrini (Università Cattolica)

Photo-transient metallization dynamics in a strongly correlated oxide: a temporally and spatially resolved perspective,
Dr. A. Ronchi. Thesis period: 01-07-2016 to 10-12-2020. Joint supervision between Università Cattolica (Italy) and KU Leuven (Belgium). Supervisor: Prof. Dr. Claudio Giannetti (Università Cattolica), Prof. Dr. Jean-Pierre Locquet (KU Leuven). Co-supervisor: Prof. Dr. Francesco Banfi (Université Claude Bernard Lyon 1), Dr. Mariela Andrea Menghini (KU Leuven) (KU Leuven)

Lead halide perovskites: size-dependent properties and photostability,
Dr. Michael C. Brennan. Thesis period: 20-11-2016 to 16-06-2020. International Doctoral Program in Science in Science. Joint supervision between Università Cattolica (Italy) and University of Notre Dame (USA). Supervisor: Prof. Dr. Francesco Banfi (Université Claude Bernard Lyon 1 and Università Cattolica), Prof. Masaru Kuno (University of Notre Dame, U.S.A)

Supervised PostDocs:

Dr. Simone Peli (2015-2017) Università Cattolica. Tutor: Dr. Francesco Banfi.

Dr. Claudia Caddeo (2016) Università Cattolica. Tutor: Dr. Francesco Banfi.

Jury member

PhD Examination Committee and/or PhD thesis reviewer.

PhD Examination Committee: PhD Thesis defence of Tatjana Stoll. Date: 12/12/2014. Université Claude Bernard Lyon 1. Thesis title: "Ultrafast electronic, acoustic and thermal properties of metal nanoparticles and clusters",

École Doctorale Physique et Astrophysique, Université Claude Bernard Lyon 1 (France).

PhD Thesis reviewer: PhD Thesis of Mr. Davide Rocco. Date: January 2019. Università degli Studi di Brescia. Thesis title: "Engineering opto-thermal proprieties of Nanostructured interfaces", PhD program in Information Engineering, Università degli Studi di Brescia (Italy).

PhD Examination Committee: PhD Thesis defence of Marco Gandolfi. Date: private defence 19/06/2019, public defence 10/12/2019. KU Leuven. Thesis title: "Aspects of ultrafast thermomechanics at the nanoscale", Arenberg Doctoral School-KU Leuven (Belgium), Joint supervision PhD between Università Cattolica and KU Leuven.

PhD Examination Committee: PhD Thesis defence of Michael C. Brennan. Date: 16/06/2020. University of Notre Dame. Thesis title: "Lead halide perovskites: size-dependent properties and photostability", International Doctoral Program in Science-Joint supervision PhD Program between Università Cattolica (Italy) and University of Notre Dame (USA).

PhD Examination Committee: PhD Thesis defence of Andrea Ronchi . Date: private defence 15/06/2020, public defence 10/12/2019 . KU Leuven. Thesis title: "Photo-transient metallization dynamics in a strongly correlated oxide: a temporally and spatially resolved perspective", Arenberg Doctoral School-KU Leuven (Belgium), Joint supervision PhD between Università Cattolica and KU Leuven.

PhD Examination Committee: PhD Thesis defence of Marco Abbatangelo. Date: 16/03/2021. Università degli Studi di Brescia. Thesis title: "IoT Mox Sensors Array for Industry 4.0 and Food Quality Control", PhD program in Information Engineering, Università degli Studi di Brescia (Italy).

PhD Examination Committee: PhD Thesis defence of Andrea Tognazzi. Date: 16/03/2021. Università degli Studi di Brescia. Thesis title: "Tunable optical devices for linear and nonlinear light manipulation at the nanoscale.", PhD program in Information Engineering, Università degli Studi di Brescia (Italy).

PhD Examination Committee-President: PhD Thesis defence of Fatemehsadat Tabatabaeikahangi. Date: 29/09/2021. Université de Lyon. Thesis title: "A theoretical study of thermoelectric efficiency and cooling power in organic molecular junctions", École Doctorale Physique et Astrophysique, Université de Lyon (France).

PhD Examination Committee: PhD Thesis defence of Paolo Franceschini. Date: private defence 09/11/2021 KU Leuven, public defence 01/02/2022. Università Cattolica. Thesis title: "Novel schemes for ultrafast manipulation of quantum materials", International Doctoral Program in Science-Università Cattolica (Italy), KU Leuven (Belgium), University of Notre Dame (U.S.A) and Universidad Pontificia de Chile (Chile).

PhD Examination Committee: PhD Thesis defence of Penghfei Zhang. Date: private defence 08/12/2021, public defence 11/01/2022. KU Leuven. Thesis title: "Optical detection of photothermally induced temperature changes in glass forming liquids", Arenberg Doctoral School-KU Leuven (Belgium).

PhD Examination Committee: PhD Thesis defence of Zacharie Behel. Date: 25/07/2022. Université de Lyon. Thesis title: "Génération de Second Harmonique de nanoparticules, jusqu'au contrôle d'une source unique", École Doctorale Physique et Astrophysique, Université de Lyon (France).

PhD Examination Committee: PhD Thesis defence of Davide Giambastiani. Date: 28/06/2022. Università degli Studi di Pisa (Italy). Thesis title: "Strain engineering of graphene with polymeric actuator", Scuola di Dottorato in Fisica, Università degli Studi di Pisa (Italy).

PhD Examination Committee: PhD Thesis defence of Michele Diego. Date: 12/12/2022. Université de Lyon. Thesis title: "Ultrafast energy transients at the nanoscale", École Doctorale Physique et Astrophysique, Université de Lyon (France).

PhD Examination Committee: PhD Thesis defence of Oscar Javier Gutiérrez Varela. Date: 28/03/2023. Universidad Nacional Autónoma de México. Thesis title: "Thermophysical properties of nanofluids", Doctorado en Ciencias (Física) Universidad Nacional Autónoma de México (Mexico).

PhD Examination Committee-President and thesis reviewer: PhD Thesis defence of Kevin Austry. Date: 15/12/2023. Université de Montpellier. Thesis title: "Casimir force and radiative heat transfer in nanostructures. Application to graphene based system and thermophotovoltaics", École Doctorale Physique et Astrophysique, Université de Montpellier (France).

PhD Thesis reviewer: PhD Thesis of Mr. Lorenzo Ramó. Date: 2024. Università di Genova. Thesis title: "Fabrication and characterization of plexcitonic hybrid systems for nanoscale heat-transfer measurements", Doctoral School in Physics and Nanosciences, Curriculum Physics, Università di Genova (Italy).

PhD Thesis reviewer: PhD Thesis of Ricardo Pepino. Date: 2025. Sapienza Università di Roma. Thesis title: "Smart Cross-Polarized Scattering: Optical technique and intelligent processing for bacteria recognition", Doctoral School in Mathematical Models for Engineering, Electromagnetism and Nanosciences, Sapienza Università di Roma (Italy).

PhD Examination Committee-President: PhD Thesis defence of Fabien Rondepierre. Date: 26/06/2025. Université de Lyon. Thesis title: "Corrélations orientationnelles des liquides explorées par diffusion de second harmonique", École Doctorale Physique et Astrophysique, Université de Lyon (France).

PhD Thesis Monitoring Committee

The committee, nominated by the doctoral school, guides and supports Ph.D. students ensuring their research and training progress, with external scientific experts providing advice and alerting in case of issues.

Comité de suivi individuel-President. Candidate: Ms. Lou-Anne Goutier. Date: 20/06/2025. École Doctorale Physique et Astrophysique, Université de Lyon (France).

Comité de suivi individuel-President. Candidate: Mr. Julien El Hajj. Date: 21/06/2023, 20/06/2024. École Doctorale Physique et Astrophysique, Université de Lyon (France).

Comité de suivi individuel-external scientific expert. Candidate: Mr. Nicolas Pajusco. Date: 06/10/2023, 04/09/2024. College Doctorale Pays de la Loire, Le Mans Université (France).

Habiliation Examination Committee

The habilitation (Habilitation à Diriger des Recherches) is a French higher education credential that authorizes its holder to supervise doctoral candidates and be considered for professorships at universities. It represents the highest level of academic qualification in France, following a doctoral degree.

Habilitation Examination Committee: Habilitation Thesis defence of Pierre-Olivier Chapuis. Date: 19/01/2021. Institut National des Sciences Appliquées de Lyon. Thesis title: "Eléments de physique des transferts thermiques aux échelles caracéristiques des porteurs de énergie", Institut National des Sciences Appliquées de Lyon and Université Claude Bernard Lyon 1 (France).

Habilitation Examination Committee and habilitation thesis reviewer: Habilitation Thesis defence of Samuel Raetz. Date: 29/01/2025. Laboratoire d'Acoustique de l'Université du Mans. Thesis title: "Imaging, non-destructive evaluation and characterization of complex materials and structures by laser ultrasound", Le Mans Université (France).

Project evaluation and research quality assessment

Project referee for the National Research, Development and Innovation Office (Hungary), 2016.

External auditor for the Evaluation of Research Quality covering the period 2015-2019 (VQR 2015-19) - Italian Ministry of Research (Italy), 2021.

Evaluator for the Frontier Interdisciplinary Projects - Institute of Materials Science of Barcelona (ICMAB-CSIC) (Spain), 2021.

Evaluator for the Nottingham Research Fellowships 2022 - University of Nottingham (UK), 2022.

Evaluator for the Deutsche Forschungsgemeinschaft (German Research Foundation), 2023.

Organisational responsibilities

I led initiatives to strenghten international relations in Physical sciences, fostering excellence-driven scientific collaborations, and promoting faculty members/student exchanges with Universities outside my home institutions.

Promoter of a Joint Doctoral Agreement between Université Claude Bernard Lyon 1- PhD program in Physics (France) and Scuola Normale Superiore - PhD program in Nanoscience(Italy). Status: ongoing.

Promoter and member of the steering committee of the International Doctor-

ate in Science among the University of Notre Dame du Lac (USA), KU Leuven (Belgium), Pontificia Universidad Católica de Chile, (Chile) and Università Cattolica del Sacro Cuore (Italy). Status: completed.

Promoter of the agreement between Università Cattolica and KU Leuven (Belgium) for a joint supervision Ph.D program in Condensed Matter Physics. Status: completed.

Academic coordinator for the TRIL Program (Training Researcher in Italian Labs) initiative between Università Cattolica and the International Centre of Theoretical Physics. The TRIL Programme offers scientists from developing countries the opportunity to undertake training and research in an Italian laboratory in different branches of the physical sciences. The aim of the programme is to promote, through direct contacts and side-by-side high-level research, collaborations between the Italian scientific community and individuals, groups and institutions in developing countries. Status: completed.

Academic coordinator for the actuation of the Memorandum of Understanding in between Università Cattolica and Indian Institute of Technology. The MoU has the purpose of facilitating all the exchanges and cooperation initiatives embarked upon the two institutions within the scope of teaching and research, and the development of common academic programs in the fields of: Condensed Matter Physics, Ultrafast Optical Sources, Ultrafast Methods and Measurements Techniques, Optics applied to biochemistry and biophysics. Status: completed.

Member of the Scientific Board of the Interdisciplinary Laboratories for Advanced Materials Physics (I-LAMP). I-LAMP focuses on the physics of strongly correlated systems, nanostructures and interfaces and time-resolved optical and photoelectron spectroscopies in condensed matter. Status: completed.

Projects

Impulsion 2019

This projects targets thermal boundary conductance between a metallic nanoobject and dielectric/conductive environment via ultrafast spectromicroscopy and photoelectron/X-ray spectrocopies.
Funding Agency: Univeristé de Lyon-French National Research Agency.
Funding: 70 KEuro
Project duration: 24 months
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Principal Investigator

BQR Accueil EC 2019

This projects targets thermal boundary conductance between a metallic nanoobject and dielectric/conductive environment via ultrafast thermoacoustic spectromicroscopy.
Funding Agency: Univeristé Calud Bernard Lyon 1.
Funding: 10 KEuro
Project duration: 12 months
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Principal Investigator

FIRB Consolidator - ULTRANANO - Ultrafast Thermodynamics at the Nanoscale

This projects targets thermodynamics at the nanoscale in view of achieving ultrafast control of the thermal and mechanical energy fluxes.
Funding Agency: Italian Ministry of Research.
Funding: 453 KEuro
Project duration: 36 months
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Principal Investigator

Fondazione EULO - Indagine sugli aspetti termomeccanici ed elettronici di film sottili e nanostrutture

This projects targets the thermoemechanics and elecronic properties of nanoparticles thin films.
Funding Agency: EULO foundation.
Funding: 12 KEuro
Project duration: 12 months
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Principal Investigator

FP7-GO FAST- Governing ultrafast the conductivity of correlated materials

The project develops efficient schemes to study electronic, optical and structural properties of correlated materials driven out of equilibrium, in view of achieving an ultrafast optical control of their electronic properties.
Funding Agency: European Commission under the FP7 for Research and Development.
Funding: 1.6 MEuro
Project duration: 36 months
Project Stage: completed.

Francesco Banfi's role and responsibility:
Role: Participant
Responsibility: in charge of modelling the material's thermal response triggered by the ultra-fast optical pulses.

Università Cattolica Grant: Phononic Crystals Thermoelasticity

Funding Agency: Università Cattolica del Sacro Cuore.
Funding: 32 KEuro
Project duration: 36 months.
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: PrincipaI Investigator

PRIN 2008: Exploiting ordered arrays of metallic nanodisks for phononic and plasmonic fs-time-resolved investigation of binding processes in surface confined ligand-receptor protein complexes.

Funding: 570 KEuro
Funding Agency: Italian Ministry of Research.
Project duration: 24 months.
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Participant
Responsability:
a) Theory and multi-physics FEM-code for an all-optical Surface Acoustic Based (SAW) mass sensor.
b) Experimental realisation of a proof-of-principle prototype.

Growth and electronic properties of superconducting single crystals-Grant number: 105485

Funding: 493538 CHF
Funding Agency: Swiss National Science Foundation.
Project duration: 12 months.
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Employee
Responsability:
Crystal Growth and characterization

RD project under Berkeley Lab Subcontract No. 6710692: Photocathodes under femtosecond radiation fields

Funding Agency: US-Department of Energy
Funding: 50 KEuro
Project duration: 12 months
Project Stage: completed.
Francesco Banfi's role and responsibility:
Role: Contracted investigator.

Prices and Awards

Prime d'Encadrement Doctoral et de Recherche.
Awarded in 2020-2021 for a four year period.
Economic recognition: 24 KEuro.
This Prime d'Encadrement Doctoral et de Recherche is awarded on a competitive base by the French Ministry of Education and Research. It consists in an economic recognition intended to reward academic personnel that distinguished her/himself for their high performance in both PhD supervision and academic research.

Experimental Skills

Transport properties of semiconductor-based low dimensional systems:
Cryogenics techniques down to 300 mK. Magneto-transport techniques: lock-in AC transport measurements, SdH and Quantum-Hall mesurements.

Nanofabrication:
Set-up of a clean room. Patterning via electron-beam and UV-optical lithography. Semiconductor processing: etching and lift-off techniques. Ohmic contacts and Schottky barrier deposition. Bonding and packaging of the final device.

Non-linear photoemission:
ARPES of image-potential sates and surface states based on ultrashort laser pulses

Time-resolved optics:
Procedures involved in setting-up and running a pump-probe experiment both with traditional delay-line and Asynchronous Optical sampling techniques. Spatial-modulation spectro-microscopy.

FIR-THz optical spectroscopy:
Development of a FIR-THz ellipsometer based on Quantum Cascade solid state lasers. Use of Thz sources for optical transmission measurements.

Crystal growth and characterization:
Crystal growth via traveling solvent floating zone method. Structural and surface characterization: x-ray diffraction, SEM, EDX. Magnetic and electrical characterisation: AC magnetic susceptibility, AC resistance measurements.

Modelling:
Multi-physics, multi-scale modelling with Finite Element Methods.

Large scale facilities:
User or projects at large scale facilities (ELETTRA, etc.).

Research Accomplishments

Transport in Low Dimensional Systems

In the course of my undergraduate and graduate studies I covered topics regarding both vertical and planar coherent electronic transport in low dimensional semiconductors.

As for the vertical transport I theoretically investigated the effect of unintentional disorder and electron-electron interaction on the pass-band capabilities and on the current-voltage characteristic of a GaAs-$Al_xGa_{1-x}As$ superlattice with Gaussian modulated Al mole fraction. This structure is very appealing because it serves as an electronic pass-band filter and because of the negative differential resistance predicted in its current-voltage characteristic.

As for the planar transport my work involved the design and construction of new Quantum Interference Devices (QUID) made by nano-patterning two dimensional electron gases (2DEGs). A QUID is an electronic device, with dimensions of the order of the electron De Broglie wavelength. In a QUID one exploits the wave nature of the electron probability amplitude to modulate macroscopic quantities, such as electric conductance, by controlling wave function interference either with magnetic or electric fields. I gained experience in electron-beam lithography, optical lithography, semiconductor processing and transport measurements down to 300 mK. I proved conductance oscillations due to electron wave function interference on QUID devices I constructed.

On the basis of the experience achieved I also did some theoretical work, proposing a three dimensional electron interferometer relying on magnetic Aharonov-Bohm effect. It was shown how the device can operate as a nano-scale gradiometer and how its application in the study of nano-magnetism could allow one to measure the absolute values of the magnetic susceptibility tensor components, locally, at the nanometer scale and non-invasively.

Work was performed at Universidad Complutense de Madrid (Spain), NEST-Lab Scuola Normale Superiore (Italy) and Physics Dept. Università di Pavia (Italy).

Non-linear Photoemission in Metals and related issues

At the end of my graduate studies and during my Post Doc I shifted to optics and non-linear photoemission investigating transient 2DEGs in metals.

Transient surface-based 2DEGs are related to image potential states (IPS). IPS are an interesting class of surface states, originated by electrons trapped in front of a metal surface where a gap of the projected bulk states occurs at energies below the vacuum level. In this case a high electron reflectivity prevents electrons from decaying into the bulk and a long range binding potential is

formed by the Coulomb attraction between electrons in the vacuum and their image charge in the solid. The electron remains unbound in the x-y plane parallel to the surface, hence forming a 2DEG.

In this frame I investigated the dynamical properties of the transient 2DEG (self-energy, electron effective mass, lifetime, dispersion relation) and reported the first evidence of Above Threshold Photoemission in solids. These studies also had an applicative fall out in view of the potential exploitation of Cu and Cs_2Te photocathodes as injectors for the fourth generation free electron laser sources. The photocathode material for the laser-driven photoinjector devices must provide, under femtosecond laser irradiation, short electron bunches with high charge density and low emittance, life-time consideration being an issu for semiconducting photocathodes. Concerning the Cu photocathodes we were able to experimentally maximize tthe Quantum Yield exploiting the Vectorial Photelectic Effect. As for the Cs_2Te photocathode, the photoemitted electron angular distribution, the transverse emittance at the cathode surface and the aging effect on Cs_2Te were investigated by Monte Carlo calculations.

Building on the acquired knowledge both on 2DEG based devices and photoemission spectroscopy, I contributed clarifying, by means of X-ray Photoemision Spectrocopy, the origin of the charge carriers forming the 2DEG at the interface between the band insulators $SrTiO_3$ and $LaAlO_3$. This result bears great relevance for the engineering of complex oxides heterojunctions in view of applications calling for 2DEGs with high electron densities.

Work was performed in the frame of a collaboration between ELPHOS Lab at Università Cattolica (Italy) and Lawrence Berkeley National Laboratory (USA).

Ultra-fast energy transients at the nanoscale

My primary research activity as a mature researcher, i.e. an activity which has been funded and has been the subject of PhD projects that I have supervised, has focused on the study of ultra-fast energy transients at the nanoscale and their exploitation as a nanometrology tool (mechanics, thermics and morphology). These investigations are characterized by both an experimental component - ultrafast time-resolved optics as the main technique, electron spectromicroscopies, X-ray diffraction, traditional optical spectroscopy - and a theoretical-numerical component - finite element simulations, molecular dynamics, and all-terrain analytical formulations. Specifically, I started an autonomous research line in the emerging field of phononic crystals and ultra-fast mechanical nanometrology of nano-structures. This was when I was hired at Università Cattolica (2007-2018). During this time, I also fostered collaborations with research groups interested in ultrafast energy transfers in strongly correlated materials and novel time-resolved spectroscopies. Later, I expanded my research to individual nano-objects and Non-Fourier heat transport. This expansion occurred when I moved to Université Claude Bernard Lyon 1 as a Full Professor (since September 2018).

On the experimental side I exploited ultrafast laser pulses from table-top sources to detect and generate impulsively excited acoustic waves (SAWs) in hypersonic phononic crystals. SAWs are surface-confined elastic oscillations that take place in a semi-infinite solid and are of great interest because of their high

sensitivity to the mechanical properties of the material in which they propagate. Their penetration depth corresponds to a fraction of the acoustic wavelength, making SAWs an appealing tool for studying the properties of thin films, including interface properties and the mechanical response of nanostructures deposited on, or embedded within, the surface. Studying nanostructured samples of ever decreasing size requires generating and detecting highly surface-confined SAWs with correspondingly short wavelengths. A surface phononic crystal (SPC, a periodic array of nanostructures patterned on an optically transparent or semi-transparent substrate) can be impulsively excited with an ultrashort laser pulse, launching a pseudosurface acoustic wave (pseudo-SAW) with wavelength limited only by the resolution of the pattern fabrication technique. The experiments proved excitation of SAWs in the tens of GHz range exploiting IR laser sources in a diffraction scheme. We elucidated the role of the SPC on the device optoacoustic response. We developed a theoretical framework to access SAWs frequencies, lifetimes and their dependence on the relevant SPC parameters. Under an applicative stand point we proposed a design for an all-optical photoacoustic mass sensors operating above 100 GHz. The design opens the path to sensors operating in a frequency range unaccessible to electro-acoustical transducers and providing enhanced sensitivity while forgoing the piezoelectric substrate requirement. We proved the existence of a new class of interface nano-confined acoustic waves in polymeric surface phononic crystals of relevance for mechanical metrology of soft interfaces.

Within this frame, I exploited ultra-fast photoacoustic techniques and multi-scale, multi-physics modeling (Moleculad Dynamics and Finite Element Methods) to investigate ultrafast thermal and mechanical transients at the nanoscale. On the mechanics side, I focused on (i) granular materials based on metallic nanoparticles, and (ii) sub-wavelength metallic nano-objets nano-patterned on insulating or semiconducting substrates (iii) 1D materials such as semiconducting nanowires, MoS2 and Carbon nanotubes. These materials bear great relevance both from an applicative and fundamental standpoint and represent an ideal clean and simple model systems where to explore the mechanical properties at the mesoscale. As for the system (i) I was able to access the morphology and mechanical properties (filling factor, elastic matrix) of the granular films. Based on this rational applications in diverse fields such as distributed gas-filtering membrane, nanofluid infiltration sensing, transparent conductive materials were proposed. Regarding system (ii) we investigated the ultrafast acoustis properties of nanoresonators showing how their Q-factors and frequencies my be tuned by aspect ratio, materials combination and how it can be effectively coupled to the localised surface plasmon resonance. Regarding system (iii) we measured for the first time the optical extinction cross-section of single MoS2 nanotubes across the entire visible spectrum. We elucidated the role of nanotube size and environment on the optical extinction cross-section, correlating the optical measurements with results from Raman and electron microscopies. We exploited ultrafast time-resolved optical spectro-microscopy to access the mechanical properties of InAs nanowires in the hypersonic frequency range, and, in the case of MoS2 nanotubes, also their internal morphology. Again, a multi-technique approach was a key aspect to correlate the acoustic response of the materials to their mechanical properties or morphology.

On the heat transport side I employed similar approaches to investigate the thermal boundary resistance (TBR) - the parameter ruling the heat flux between

a nano-object and the embedding environment - and electron-phonon coupling in nano- and meso-scale structures (dimensions ranging from hundred of nm down to few nm). Accessing the thermal resistance between nanosized metals and insulating substrates remains an open issue and the prerequisite to enhance heat dissipation in next-generation micro and nanodevices. Indeed low thermal dissipation across heterojunctions is among the main impediments towards further circuits downscaling. I then focused on the thermal boundary resistance in nanoliquids, i.e. liquids wtih nanomaterials in suspension. I contributed to the first experimental retrieval of the thermal boundary resistance at the CNT-water interface. I elucidated the role of the TBR and the laser pulse duration on the launching mechanism of acoustic waves in nanofluids up to the hypersonic frequency range.

Another related topic I'm currently active on pertains to the observation of temperature wave on the ultra-fast time scale. Coherent control of wave-like phenomena via metamaterials is driving a technological revolution in fields ranging from electronics, photonics, to phononics. Although temperature has been historically considered as the paradigmatic example of an incoherent field, undergoing diffusive as opposed to wave-like propagation, on short space and time scales Fourier law fails and the possibility for temperature wave propagation sets in. The ultimate goal is to devise metamaterials exploiting the wave nature of the temperature scalar field arising in non-Fourier heat transport regimes. In this context I investigated the conditions required to obtain temperature oscillation on the ultra-fats time scale. I then proposed quantum materials based superlattices as a possible class of materials in which electronic and phononic temperature coherency may be observed.

These developments have also proven useful in other fields, where my contribution was more technical within collaborative projects. On the thermal side, the above-mentioned machinery allowed simulating the thermal-dynamics triggered by a short laser pulse in Hight Temperature Superconductors and Strongly Correlated Materials over several time decades as a function of the thermal bath temperature. Knowledge of the out-of-equilibrium thermal dynamics occurring in the system is of paramount importance to correctly interpret the experimental findings. On the nano-mechanics side, the lattice dynamics following an impulsive excitation of the elastic eigenmodes triggered by a short-laser pulse parallels the impulsive excitation of an Atomic Force Microscope cantilever following a jump to contact transition. In this context we introduced a wavelet cross-correlation technique yielding time-frequency informations on the cantilever-surface interaction.

Publications

Journals

Metrics regarding peer-reviewed publications on international journals taken from Scopus starting from 2001 to 2025.

Total number of listed publications: 72.

I did not include conference papers and proceedings indexed in Scopus.

Total impact factor: 436,69

Total citations: 1751

Average Citations per publication: 24,32

Hirsch (H) index: 25

Normalized H-index (H index divided by the number of years since first publication): 1

Average IF (total IF divided by the number of publications): 6,06

Note that, for the calculation of the IF, there were two publications for which the Journal IF in the year of my article's publication was not available on Scopus: *J. Phys. Chem. C* ***129****, 5086 (2025)* and *Photonics Journal IEEE* **1**, 21 (2009). For the former, I used the Journal's IF available for 2024, since the one for 2025 is not available yet. For the latter, I used the IF available for 2010, since the one for 2009 is not available (2009 being first year of publication of the journal).

Metrics regarding peer-reviewed publications on international journals, taken from Scopus, in the past 15 years, intended as starting from January 2010.

Total number of listed publications: 62.

I did not include conference papers and proceedings indexed in Scopus.

Total impact factor: 402,66

Total citations: 1473

Average Citations per publication: 23,76

Hirsch (H) index: 23

Normalized H-index (H index in the last 15 years divided by 15 years): 1,53

Average IF (total IF in the past 15 years divided by the number of publications on the same period): 6,49

Note that, for the calculation of the IF, there was one publication for which the Journal IF in the year of my article's publication was not available on Scopus: *J. Phys. Chem. C* ***129****, 5086 (2025).* I used the Journal's IF available for 2024, since, the one for 2025 is not available.

List of peer-reviewed publications on international journals taken from Scopus starting from 2001 to 2025.

In the present list I did not include conference papers and proceedings indexed in Scopus.

2025

•*Single MoS_2 Nanotube Experimental Optical Extinction Cross Section*
A. Colosimo, A. Crut, N. Lascoux, C. Panais, A. Casto, F. Vialla, V. Demontis, L. Martini, P. Rosi, E. Rotunno, GC Gazzadi, M. Beleggia, M. Krishnappa, A. Zak, F. Beltram, F. Rossella, F. Vallée, N. Del Fatti, F. Banfi, P. Maioli
J. Phys. Chem. C ***129****, 5086 (2025)*

DOI: 10.1021/acs.jpcc.4c08613

2024

•*Simplifying Asynchronous Optical Sampling: an Experimental Approach Toward Industrial Integration exploiting Lock-in acquisition*
S. Peli, A. Tognazzi, P. Franceschini, M. Gandolfi, C. Giannetti, G. Ferrini, and F. Banfi
Applied Optics ***63****, 6086 (2024)*

DOI: 10.1364/AO.525546

•*Experimental optical retrieval of the Thermal Boundary Resistance of carbon nanotubes in water*
A. Casto, M. Vittucci, F. Vialla, A. Crut, F. M. Bellussi, M. Fasano, F. Vallée, N. Del Fatti, F. Banfi, P. Maioli
Carbon ***229****, 119445 (2024)*

DOI: 10.1016/j.carbon.2024.119445

•*Impact of MoS2 Monolayers on the Thermoelastic Response of Silicon Heterostructures*
D. Soranzio, D. Puntel, M. Tuniz, P.E. Majchrzak, A. Milloch, N.M. Olsen, W. Bronsch, B.S. Jessen, D. Fainozzi, J.S. Pelli Cresi, D. De Angelis, L. Foglia, R. Mincigrucci, X. Zhu, C.R. Dean, S. Ulstrup, F. Banfi, C. Giannetti, F. Parmigiani, F. Bencivenga, F. Cilento
ACS Appl. Nano Mater. ***7****, 15317 (2024)*

DOI: 10.1021/acsanm.4c02096

•*Impact of supporting nanometric membranes on the thermo-optical dynamics of individual plasmonic nanodisks*
C. Panais, N. Lascoux, S. Marguet, P. Maioli, F. Banfi, F. Vallée, N. Del Fatti, A. Crut
Nanoscale ***16****, 12071 (2024)*

DOI: 10.1039/d4nr01060d

2023

•*Halide Perovskite Artificial Solids as a New Platform to Simulate Collective Phenomena in Doped Mott Insulators*
A. Milloch, U. Filippi, P. Franceschini, M. Galvani, S. Mor, S. Pagliara, G. Ferrini, F. Banfi, M. Capone, D. Baranov, L. Manna, C. Giannetti
Nano Lett. ***23****, 10617 (2023)*

DOI: 10.1021/acs.nanolett.3c03715

•*Cooling Dynamics of Individual Gold Nanodisks Deposited on Thick Substrates and Nanometric Membranes*
C. Panais, R. Rouxel, N. Lascoux, S. Marguet, P. Maioli, F. Banfi, F. Vallée, N. Del Fatti, Aurélien Crut
Phys. Chem. Lett. ***14****, 23, 5343 (2023)*

DOI: 10.1021/acs.jpclett.3c00653

•*Acoustic wave generation in nanofluids: effect of the Kapitza resistance on*

the thermophone to mechanophone generation mechanisms transition
S. Giordano, M. Diego, F. Banfi
J. Phys. Chem. C ***127****, 21, 10227 (2023)*

DOI: doi: 10.1021/acs.jpcc.3c01808

• *Coherent control of the orbital occupation driving the insulator-to-metal Mott transition in V2O3*
P. Franceschini, V. R. Policht, A- Milloch, A. Ronchi, S. Mor, S. Mellaerts, W-F. Hsu, S. Pagliara, G. Ferrini, F. Banfi, M. Fabrizio, M. Menghini, J-P. Locquet , S. Dal Conte, G. Cerullo, C. Giannetti
Phys. Rev B. ***107****, L161110 (2023)*

DOI: 10.1103/PhysRevB.107.L161110

• *Water filling in carbon nanotubes with different wettability and implications on nanotube/water heat transfer via atomistic simulations*
A. Casto, F. M. Bellussi, M. Diego, N. Del Fatti, F. Banfi, P. Maioli and M. Fasano
Int. J. Heat Mass Transf. ***205****, 123868 (2023)*

DOI: 10.1016/j.ijheatmasstransfer.2023.123868

2022

• *Tuning photoacoustics with nanotransducers via thermal boundary resistance and laser pulse duration*
M. Diego, M. Gandolfi, S. Giordano, F. Vialla, A. Crut, F. Vallée, P. Maioli, N. Del Fatti, and F. Banfi
Appl. Phys. Lett. ***121****, 252201 (2022)*

DOI: 10.1063/5.0135147

• *Ultrafast nano generation of acoustic waves in water via a single carbon nanotube*
M. Diego, M. Gandolfi, A. Casto, F.M. Bellussi, F. Vialla, A. Crut, S. Roddaro, M. Fasano, F. Vallée, N. Del Fatti, P. Maioli and F. Banfi
Photoacoustics ***28****, 100407 (2022)*

DOI: 10.1016/j.pacs.2022.100407

• *Nanoscale self-organization and metastable non-thermal metallicity in Mott insulators*
A. Ronchi, P. Franceschini, A. De Poli, Pi. Homm, A. Fitzpatrick, F. Maccherozzi, G. Ferrini, F. Banfi, S. S. Dhesi, M. Menghini, M. Fabrizio, J.-P. Locquet and Claudio Giannetti
Nature Communications ***13****, 3730 (2022)*

DOI: 10.1038/s41467-022-31298-0

• *Ultrafast Photoacoustic Nanometrology of InAs Nanowires Mechanical Properties*
M. Gandolfi, S. Peli, M. Diego, S. Danesi, C. Giannetti, I. Alessandri, V. Zannier, V. Demontis, M. Rocci, F. Beltram, L. Sorba, S. Roddaro, F. Rossella, and F. Banfi
J. Phys. Chem. C ***126****, 6361 (2022)*

DOI: 10.1021/acs.jpcc.2c01060

2021

• *Thermal dynamics and electronic temperature waves in layered correlated materials*
G. Mazza, M. Gandolfi, M. Capone, F. Banfi, C. Giannetti
Nature Comm. ***12****, 6904 (2021)*

DOI: 10.1038/s41467-021-27081-2

• *Mechanical Properties of Nanoporous Metallic Ultrathin Films: A Paradigmatic Case*
G. Benetti, F. Banfi, E. Cavaliere, L. Gavioli
Nanomaterials ***11****, 3116 (2021)*

DOI: https://doi.org/10.3390/nano11113116

• *Revisiting impulsive stimulated thermal scattering in supercooled liquids: relaxation of specific heat and thermal expansion*
M. Gandolfi, L. Liu, P. Zhang, M. Kouyaté, R. Salenbien, F. Banfi, C. Glorieux
J. Chem. Phys. ***155****, 164501 (2021)*

DOI:10.1063/5.0063805

• *Electron and Lattice Heating Contributions to the Transient Optical Response of a Single Plasmonic Nano-Object*
R. Rouxel, M.Diego, P. Maioli, N. Lascoux, F.Vialla, F. Rossella, F. Banfi, Vallée, N. Del Fatti, A. Crut
J. Chem. Phys. C Article ASAP (2021)

DOI:10.1021/acs.jpcc.1c06629

• *Time-resolved thermal lens investigation of glassy dynamics in supercooled liquids: theory and experiments*
P. Zhang, M. Gandolfi, F. Banfi, C. Glorieux, L. Liu
J. Chem. Phys. ***155****, 074503 (2021)*

DOI:10.1063/5.0060310

• *Analytical model of the acoustic response of nanogranular films adhering to a substrate*
G. Rizzi, G. Benetti, C. Giannetti, L. Gavioli, F. Banfi
Phys. Rev. B ***104****, 035416 (2021)*

DOI:10.1103/PhysRevB.104.035416

• *Light-Assisted Resistance Collapse in a V_2O_3-Based Mott-Insulator Device*
A. Ronchi, P. Franceschini, P. Homm, M. Gandolfi, G. Ferrini, S. Pagliara, F. Banfi, M. Menghini, J-.P. Locquet, C. Giannetti
Phys. Rev. Applied ***15****, 044023 (2021)*

DOI:10.1103/PhysRevApplied.15.044023

• *Discrimination of nano-objects via cluster analysis techniques applied to time-resolved thermo-acoustic microscopy*
A. Ronchi, A. Sterzi, M. Gandolfi, A. Belarouci, C.Giannetti, N. Del Fatti, F. Banfi, G. Ferrini

*Ultrasonics **114**, 106403 (2021)*

DOI:10.1016/j.ultras.2021.106403

2020

• *Temperonic crystal: A superlattice for temperature waves in graphene*
G. Gandolfi, C. Giannetti, F. Banfi
*Phys. Rev. Lett. **125**, 265901 (2020)*

DOI:10.1103/PhysRevLett.125.265901

• *Ag Functionalization of Al-Doped ZnO Nanostructured Coatings on PLA Substrate for Antibacterial Applications*
D Valerini, L. Tammaro, G. Vigliotta, E. Picariello, F. Banfi, E. Cavaliere, L. Ciambriello, L. Gavioli
*Coatings **10**, 1238 (2020)*

DOI:10.3390/coatings10121238

• *Tuning the Ultrafast Response of Fano Resonances in Halide Perovskite Nanoparticles*
P. Franceschini, L. Carletti, A. P. Pushkarev, F. Preda, A. Perri, A. Tognazzi, A. Ronchi, G. Ferrini, S. Pagliara, F. Banfi, D. Polli, G. Cerullo, C. De Angelis, S. V. Makarov, C. Giannetti
*ACS Nano **14**, 13602 (2020)*

DOI:10.1021/acsnano.0c05710

• *Optical and mechanical properties of streptavidin-conjugated gold nanospheres through data mining techniques*
S. Peli, A. Ronchi, G. Bianchetti, F. Rossella, C. Giannetti, M. Chiari, P. Pingue, F. Banfi, G. Ferrini
*Sci. Rep. **10**, 16230 (2020)*

DOI:10.1038/s41598-020-72534-1

• *Optical wavelength dependence of photoacoustic signal of gold nanofluid*
M. Gandolfi, F. Banfi, C. Glorieux
*Photoacoustics **20**, 100199 (2020)*

DOI:10.1016/j.pacs.2020.100199

• *Ultrafast Thermo-Optical Dynamics of a Single Metal Nano-Object*
R. Rouxel, M. Diego, F. Medeghini, P Maioli, F. Rossella, Vallée, F. Banfi, A. Crut, N. Del Fatti
*J. Phys. Chem. C **124**, 15625 (2020)*

DOI:10.1021/acs.jpcc.0c04709

• *Antimicrobial Nanostructured Coatings: A Gas Phase Deposition and Magnetron Sputtering Perspective*
G. Benetti, E. Cavaliere, F. Banfi and L. Gavioli
*Materials **13**, 784 (2020)*

DOI:10.3390/ma13030784

2019

•*Strong Modulations of Optical Reflectance in Tapered Core-Shell Nanowires*
F. Floris, L. Fornasari, V. Bellani, A. Marini, F. Banfi, F. Marabelli, F. Beltram, D. Ercolani, S. Battiato, L. Sorba and F. Rossella
Materials ***12****, 3572 (2019)*

DOI:10.1021/acs.jpclett.9b01898

•*Signatures of Small Morphological Anisotropies in the Plasmonic and Vibrational Responses of Individual Nano-objects*
F. Medeghini, R. Rouxel, A. Crut, P. Maioli, F. Rossella, F. Banfi, F. Vallée, and N. Del Fatti
J. Phys. Chem. Lett. ***10****, 5372 (2019)*

DOI:10.1021/acs.jpclett.9b01898

•*Accessing temperature waves: A dispersion relation perspective*
M. Gandolfi, G. Benetti, C. Glorieux, C. Giannetti, and F. Banfi
Int. J. Heat Mass Transf. ***143****, 118553 (2019)*

DOI:10.1016/j.ijheatmasstransfer.2019.118553

•*Early-stage dynamics of metallic droplets embedded in the nanotextured Mott insulating phase of* V_2O_3
A. Ronchi, P. Homm, M. Menghini, P. Franceschini, F. Maccherozzi, F. Banfi, G. Ferrini, F. Cilento, F. Parmigiani, S. Dhesi, M. Fabrizio, J.-P. Locquet, and C. Giannetti
Phys. Rev. B ***100****, 075111 (2019)*

DOI:10.1103/PhysRevB.100.075111

•*Ag cluster beam deposition for TCO/Ag/TCO multilayer*
G. Torrisi, E. Cavaliere, F. Banfi, G. Benetti, R. Raciti, L. Gavioli and A. Terrasi
Sol. Energy Mater. Sol. Cells ***199****, 114 (2019)*

DOI:10.1016/j.solmat.2019.04.025

•*Tailored Ag-Cu-Mg multi-element nanoparticles for wide-spectrum antibacterial coating*
G. Benetti, E. Cavaliere, R. Brescia, S. Salassi, R. Ferrando, A. Vantomme, L. Pallecchi, S. Pollini, S. Boncompagni, B. Fortuni, M. Van Bael, F. Banfi, and L. Gavioli
Nanoscale ***11****, 1626 (2019)*

Selected for the HOT Nanoscale article collection published in 2018
DOI:10.1039/C8NR08375D

2018

•*Photoacoustic sensing of trapped fluids in nanoporous thin films: device engineering and sensing scheme*
G. Benetti, M. Gandolfi, M. J. Van Bael, L. Gavioli, C. Giannetti, C. Caddeo, and F. Banfi
ACS Appl. Mater. Interfaces ***10****, 27947 (2018)*

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•*Controlling the Quality Factor of a Single Acoustic Nanoresonator by Tuning its Morphology*
F. Medeghini, A. Crut, M. Gandolfi, F. Rossella, P. Maioli, F. Vallée, F. Banfi, and Natalia Del Fatti
Nano Lett. ***18****, 5159 (2018)*

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S. Danesi, M. Gandolfi, L. Carletti, N. Bontempi, C. De Angelis, F. Banfi and I. Alessandri
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•*Theory of Single-Impact Atomic Force Spectroscopy in liquids with material contrast*
E. A. López-Guerra, F. Banfi, S. D. Solares and G. Ferrini
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•*Ultrafast Thermo-Optical Dynamics of Plasmonic Nanoparticles*
M. Gandolfi, A. Crut, F. Medeghini, T. Stoll, P. Maioli, Vallée, F. Banfi and N. Del Fatti
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2017

•*Self-assembled InAs nanowires as optical reflectors*
F. Francesco, M. Andrea, L. Fornasari, V. Bellani, F. Banfi, S. Roddaro, D. Ercolani, M. Rocci, F. Beltram, M. Cecchini, L. Sorba and F. Rossella
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•*Bottom-Up Mechanical Nanometrology of Granular Ag Nanoparticles Thin Films*
G. Benetti, C. Caddeo, C. Melis, G. Ferrini, C. Giannetti, N. Winckelmans, S. Bals, M. J Van Bael, E. Cavaliere, L. Gavioli and F. Banfi
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DOI: 10.1021/acs.jpcc.7b05795

•*Mottness at finite doping and charge instabilities in cuprates*
S. Peli, S. Dal Conte, R. Comin, N. Nembrini, A. Ronchi, P. Abrami, F. Banfi, G. Ferrini, D. Brida, S. Lupi, M. Fabrizio, A. Damascelli, M. Capone, G. Cerullo and C. Giannetti
Nature Physics ***13****, 806 (2017)*

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•*Thermal boundary resistance from transient nanocalorimetry: a multiscale modeling approach*
C. Caddeo, C. Melis, A. Ronchi, C. Giannetti, G. Ferrini, R. Rurali, L.

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•*Emergent ultrafast phenomena in correlated oxides and heterostructures*
M. Gandolfi, L. Celardo, F. Borgonovi, G. Ferrini, A. Avella, F. Banfi and C. Giannetti
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2016

•*Tracking local magnetic dynamics via high-energy charge excitations in a relativistic Mott insulator*
N. Nembrini, S. Peli, F. Banfi, G. Ferrini, Yogesh Singh, P. Gegenwart, R. Comin, K. Foyevtsova, A. Damascelli, A. Avella and C. Giannetti
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DOI: 10.1103/PhysRevB.94.201119

•*Mechanical properties of Ag nanoparticle thin films synthesized by Supersonic Cluster Beam Deposition*
S. Peli, E. Cavaliere, G. Benetti, M. Gandolfi, M. Chiodi, C. Cancellieri, C. Giannetti, G Ferrini, L. Gavioli and F. Banfi
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S. Peli, N. Nembrini, F. Damin, M. Chiari, C. Giannetti, F. Banfi and G. Ferrini
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V. Pukhova, F. Banfi and G. Ferrini

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Appl. Phys. Lett. ***100****, 011902 (2012)*

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D. Nardi, M. Travagliati, M. E. Siemens, Qing Li, M. M. Murnane, H. C. Kapteyn, G. Ferrini, F. Parmigiani and F. Banfi
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•*Spectroscopic evidence of in-gap states at the SrTiO3/LaAlO3 ultrathin interfaces*
G. Drera, F. Banfi, F. Federici Canova, P. Borghetti, L. Sangaletti, F. Bondino, E. Magnano, J. Huijben, M. Huijben, G. Rijnders, D.H.A. Blank, H. Hilgenkamp, and A. Brinkman
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• *Ab-initio calculation of all-optical time-resolved calorimetry of nanosized systems: Evidence of nanosecond-decoupling of electron and phonon temperatures*
F. Banfi, F. Pressacco, B. Revaz, C. Giannetti, D. Nardi, G. Ferrini, and F. Parmigiani,
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DOI: 10.1103/PhysRevB.81.155426

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• *Pseudosurface acoustic waves in hypersonic surface phononic crystals*
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http://www.vjultrafast.org/

• *Ultrafast laser pulses to detect and generate fast thermo-mechanical transients in matter*
C. Giannetti, F. Banfi, D. Nardi, G. Ferrini, and F. Parmigiani,
Photonics Journal IEEE **1**, 21 (2009)

Invited paper

DOI: 10.1109/JPHOT.2009.2025050
On-line free access at
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• *Non-linear electron photoemission from metals with ultrashort pulses*
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Nucl. Instrum. Meth. A **601**, 123 (2009)

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2007

• *Thermo-mechanical behaviour of surface acoustic waves in ordered arrays of nanodisks studied by near infrared pump-probe diffraction experiments*
C. Giannetti, B. Revaz, F. Banfi, M. Montagnese, G. Ferrini, F. Cilento, S. Maccalli, P. Vavassori, G. Oliviero, E. Bontempi, L.E. Depero, V. Metlushko and F. Parmigiani,
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•*On the role of athermal electrons in non-linear photoemission from Ag(100)*
C. Giannetti, G. Ferrini, S. Pagliara, G. Galimberti, F. Banfi, E. Pedersoli, and F. Parmigiani,
Eur. Phys. J. B **53**, 121 (2006)

DOI:10.1140/epjb/e2006-00337-0

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E. Pedersoli, F. Banfi, B. Ressel, S. Pagliara, C. Giannetti, G. Galimberti, S. Lidia, J. Corlett, G. Ferrini, and F. Parmigiani,
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•*Experimental Evidence of Above-Threshold Photoemission in Solids*
F. Banfi, C. Giannetti, G. Ferrini, G. Galimberti, S. Pagliara , D. Fausti, and F. Parmigiani,
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G. Ferrini, C. Giannetti, G. Galimberti, S. Pagliara, D. Fausti, F. Banfi, and F. Parmigiani,
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F. Banfi,
Semicond. Sci. Technol. **19**, 342 (2004)

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•*Interface roughness effects in Gaussian superlattices*
F. Banfi, V. Bellani, I. Gomez, E. Diez and F. Dominguez-Adame,
Semicond. Sci. Technol. **16**, 304 (2001)

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Books

List of Books Chapters indexed in Scopus starting from 2001 to 2025.

Total number of listed books: 2.

• *Ch. 12 - Optical and Mechanical Investigations of Nanostructures for Biomolecular Detection*
Authors: G. Malegori, D. Nardi, Banfi, C. Giannetti and G. Ferrini
Book Title: *Nanomedicine and Cancer Therapies*, 170 - 184 (15)
Series: Advances in Nanoscience and Nanotechnology
Editor: Apple Academic Press Inc., 3333 Mistwell Crescent, Oakville, ON L6L 0A2 Canada
Published in Point Pleasant, NJ 08742 - United States
Publication Year: 2012

• *Ch. 11 - Antimicrobial nanostructured coating*
Authors: E. Cavaliere, G. Benetti, F. Banfi and Luca Gavioli
Editors: Paolo Milani, Mukhles Sowwan
Frontiers of Nanoscience
Elsevier
Volume 15, 2020, Pages 291-311
ISSN 1876-2778, ISBN 9780081025154,
DOI: 10.1016/B978-0-08-102515-4.00011-8

Selected publications for the evaluation

Legend: * = corresponding author.

• *Single MoS_2 Nanotube Experimental Optical Extinction Cross Section*
A. Colosimo, A. Crut, N. Lascoux, C. Panais, A. Casto, F. Vialla, V. Demontis, L. Martini, P. Rosi, E. Rotunno, GC Gazzadi, M. Beleggia, M. Krishnappa, A. Zak, F. Beltram, F. Rossella, F. Vallée, N. Del Fatti, F. Banfi*, P. Maioli
J. Phys. Chem. C ***129****, 5086 (2025)*

DOI: 10.1021/acs.jpcc.4c08613

Journal IF (Scopus referred to 2024): 3.2

Number of citations (Scopus): 2

• *Experimental optical retrieval of the Thermal Boundary Resistance of carbon nanotubes in water*
A. Casto, M. Vittucci, F. Vialla, A. Crut, F. M. Bellussi, M. Fasano, F. Vallée, N. Del Fatti, F. Banfi, P. Maioli*
Carbon ***229****, 119445 (2024)*

DOI: 10.1016/j.carbon.2024.119445

Journal IF: 11.6

Number of citations: 2

• *Ultrafast nano generation of acoustic waves in water via a single carbon nanotube*
M. Diego*, M. Gandolfi*, A. Casto, F.M. Bellussi, F. Vialla, A. Crut, S. Roddaro, M. Fasano, F. Vallée, N. Del Fatti, P. Maioli and F. Banfi
Photoacoustics ***28****, 100407 (2022)*

DOI: 10.1016/j.pacs.2022.100407

Journal IF: 7.9

Number of citations: 17

• *Ultrafast Photoacoustic Nanometrology of InAs Nanowires Mechanical Properties*
M. Gandolfi*, S. Peli*, M. Diego, S. Danesi, C. Giannetti, I. Alessandri, V. Zannier, V. Demontis, M. Rocci, F. Beltram, L. Sorba, S. Roddaro, F. Rossella, and F. Banfi
J. Phys. Chem. C ***126****, 6361 (2022)*

DOI: 10.1021/acs.jpcc.2c01060

Journal IF: 3.7

Number of citations: 18

• *Discrimination of nano-objects via cluster analysis techniques applied to time-resolved thermo-acoustic microscopy*
A. Ronchi, A. Sterzi, M. Gandolfi, A. Belarouci, C.Giannetti, N. Del Fatti, F. Banfi*, G. Ferrini*
Ultrasonics ***114****, 106403 (2021)*

DOI:1 0.1016/j.ultras.2021.106403

Journal IF: 4.062

Number of citations: 23

• *Thermal dynamics and electronic temperature waves in layered correlated materials*
G. Mazza*, M. Gandolfi, M. Capone, F. Banfi*, C. Giannetti*
Nature Comm. ***12****, 6904 (2021)*

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Journal IF: 17.694

Number of citations: 12

• *Temperonic crystal: A superlattice for temperature waves in graphene*
G. Gandolfi*, C. Giannetti, F. Banfi*
Phys. Rev. Lett. ***125****, 265901 (2020)*

DOI:10.1103/PhysRevLett.125.265901

Journal IF: 9.161

Number of citations: 41

• *Accessing temperature waves: A dispersion relation perspective*
M. Gandolfi*, G. Benetti, C. Glorieux, C. Giannetti, and F. Banfi*
Int. J. Heat Mass Transf. ***143****, 118553 (2019)*

DOI:10.1016/j.ijheatmasstransfer.2019.118553

Journal IF: 4.947

Number of citations: 37

• *Tailored Ag-Cu-Mg multi-element nanoparticles for wide-spectrum antibacterial coating*
G. Benetti, E. Cavaliere, R. Brescia, S. Salassi, R. Ferrando, A. Vantomme, L. Pallecchi, S. Pollini, S. Boncompagni, B. Fortuni, M. Van Bael, F. Banfi, and L. Gavioli*
Nanoscale ***11****, 1626 (2019)*

Selected for the HOT Nanoscale article collection published in 2018
DOI:10.1039/C8NR08375D

Journal IF: 6.895

Number of citations: 63

• *Photoacoustic sensing of trapped fluids in nanoporous thin films: device engineering and sensing scheme*
G. Benetti, M. Gandolfi, M. J. Van Bael, L. Gavioli, C. Giannetti, C. Caddeo, and F. Banfi*
ACS Appl. Mater. Interfaces ***10****, 27947 (2018)*

DOI:10.1021/acsami.8b07925

Journal IF: 8.456

Number of citations: 25

• *Controlling the Quality Factor of a Single Acoustic Nanoresonator by Tuning its Morphology*
F. Medeghini, A. Crut*, M. Gandolfi, F. Rossella, P. Maioli, F. Vallée, F. Banfi, and Natalia Del Fatti
Nano Lett. ***18****, 5159 (2018)*

DOI:10.1021/acs.nanolett.8b02096

Journal IF: 12.279

Number of citations: 47

• *Bottom-Up Mechanical Nanometrology of Granular Ag Nanoparticles Thin Films*
G. Benetti, C. Caddeo*, C. Melis, G. Ferrini, C. Giannetti, N. Winckelmans, S. Bals, M. J Van Bael, E. Cavaliere, L. Gavioli and F. Banfi*

J. Phys. Chem. C ***121****, 22434 (2017)*

DOI: 10.1021/acs.jpcc.7b05795

Journal IF: 4.484

Number of citations: 32

• *Thermal boundary resistance from transient nanocalorimetry: a multiscale modeling approach*
C. Caddeo*, C. Melis, A. Ronchi, C. Giannetti, G. Ferrini, R. Rurali, L. Colombo and F. Banfi*
Phys. Rev. B ***95*** *085306 (2017)*

DOI: 10.1103/PhysRevB.95.085306

Journal IF: 3.813

Number of citations: 21

• *Emergent ultrafast phenomena in correlated oxides and heterostructures*
M. Gandolfi, L. Celardo, F. Borgonovi, G. Ferrini, A. Avella*, F. Banfi* and C. Giannetti*
Phys. Scr. ***92*** *034004 (2017)*

DOI: http://10.1088/1402-4896/aa54cc

Journal IF: 1.9

Number of citations: 26

• *Mechanical properties of Ag nanoparticle thin films synthesized by Supersonic Cluster Beam Deposition*
S. Peli, E. Cavaliere, G. Benetti, M. Gandolfi, M. Chiodi, C. Cancellieri, C. Giannetti, G Ferrini, L. Gavioli* and F. Banfi*
J. Phys. Chem. C ***120****, 4673 (2016)*

DOI: 10.1021/acs.jpcc.6b00160

Journal IF: 4.536

Number of citations: 32

• *Interface nano-confined acoustic waves in polymeric surface phononic crystals*
M. Travagliati*, D Nardi, C. Giannetti, V. Gusev, P. Pingue, V. Piazza, G. Ferrini and F. Banfi*
Appl. Phys. Lett., ***106****, 021906 (2015)*

DOI: 10.1063/1.4905850

Journal IF: 3.142

Number of citations: 27

Workshops and Congresses

The following works have been presented, throughout the years at conferences in the form of invited oral (I), oral (O) and poster contributions and as invited lectures at several institutions either by my self (when underlined) or co-authors. Only the conferences pertaining to my core business have been reported

META 2025, 15th International Conference on Metamaterials, Photonic Crystals and Plasmonics, 22-25 July 2025, Torremolinos, Spain. G. Benetti, M. Gandolfi, R. Rurali, C. Giannetti, F. Banfi : *Temperonic metamaterials: shaping wave-like temperature oscillations on the ultrafast time scale.* (I)

FisMat 2025, 7-11 July 2025, Università Cá Foscari - Campus San Giobbe, Venice, Italy A. Colosimo, A. Crut, N. Lascoux, F. Vialla, V. Zannier, V. Demontis, M. Krishnappa, A. Zak, L. Sorba, F. Beltram, F. Rossella, N. Del Fatti, P. Maioli, F. Banfi : *Ultrafast photoacoustic nanoscopy of individual high aspect-ratio semiconducting mechanical nanoresonators.* (I)

Invited Seminar. January 11^{th} 2024, LAUM (Laboratoire d'Acoustique de l'Université du Mans), Le Mans Université, Le Mans, France. F. Banfi: *Water immersed photoacoustic nano-transducers: role of the thermal boundary resistance.* (I).

2023 International School of Quantum Electronics, 64th Course: Progress in Photoacoustic and Photothermal Phenomena: Progress in Photoacoustic and Photothermal Phenomena: focus on biomedical, nanoscale, nde, gas sensing, and thermophysical phenomena and technologies, Erice, Italy, 24 September- 1 October 2023. M. Gandolfi, G. Mazza, M. Capone, C. Giannetti, F. Banfi : *Towards coherent control of heat transport on ultrashort and ultrafast time scales.* (O)

CMD30 and FisMat 2023 joint conference, 4-8 September 2023, Milan, Italy. M. Gandolfi, G. Mazza, M. Capone, C. Giannetti, F. Banfi : *From Photonic to Temperonic Metamaterials: A New Paradigm in Nanoscale Heat Transport.* (I)

PIERS (PhotonIcs & Electromagnetics Research Symposium), 3-6 July 2023, Prague, Czech Republic. M. Gandolfi, G. Mazza, M. Capone, C. Giannetti, F. Banfi : *From Photonic to Temperonic Metamaterials: A New Paradigm in Nanoscale Heat Transport.* (I)

PIERS (PhotonIcs & Electromagnetics Research Symposium), 3-6 July 2023, Prague, Czech Republic. M. Diego, M. Gandolfi, S. Giordano, F. Vialla, A. Crut, F. Vallée, P. Maioli, N. Del Fatti, F. Banfi : *Photoacoustic generation in water with nanotransducers via laser pulse duration.* (O)

PIERS (PhotonIcs & Electromagnetics Research Symposium), 3-6 July 2023, Prague, Czech Republic. A. Casto, M. Vittucci, F. M. Bellussi, M. Diego, F. Vialla, A. Crut, F. Vallée, M Fasano, N. Del Fatti, F. Banfi, P. Maioli : *All-optical Retrieval of the Thermal Boundary Resistance at the Interface between Carbon Nanotubes and Water.* (O)

CLEO/Europe-EQEC 2023, 26-30 June 2023, Munich, Germany. M. Diego, M. Gandolfi, S. Giordano, A. Casto, F. Maria Belussi, A. Crut, F. Vialla, S. Roddaro, M. Fasano, F. Vallée, P. Maioli, N. Del Fatti, F. Banfi : *Ultrafast*

Nano Generation of Acoustic Waves in Water: Thermophone versus Mechanophone. (O)

Metamaterials, Siena, Italy, 12-17 September 2022. M Gandolfi, Giacomo Mazza, Massimo Capone, Francesco Banfi, Claudio Giannetti: *Temperonic Crystal: A Superlattice For Temperature Waves In Layered Correlated Materials.* (O)

2022 International Conference on Thermodynamics and Thermal Metamaterials (ThermoMeta2022), 17-19 August 2022. On-line format. Marco Gandolfi, Giacomo Mazza, Massimo Capone, Francesco Banfi, Claudio Giannetti: *Temperature Waves In Layered Correlated Materials And Temperonic Crystals.* (I)

ICPPP21 Conference 2022 - International Conference on Photoacoustic and Photothermal Phenomena, Bled, Slovenia, 19-24 June 2022. M. Gandolfi, S. Peli, M. Diego, S. Danesi, C. Giannetti, I. Alessandri, V. Zannier, V. Demontis, M. Rocci, F. Beltram, L. Sorba, S. Roddaro, F. Rossella, F. Banfi: *Ultrafast photoacoustic assessment of mechanical properties in InAs nanowires.* (O)

ICPPP21 Conference 2022 - International Conference on Photoacoustic and Photothermal Phenomena, Bled, Slovenia, 19-24 June 2022. L. Liu, P. Zhang, M. Gandolfi, F. Banfi, O. Deschaume, C. Bartic, C. Glorieux C: *Photothermal and photoacoustic exploration of relaxation in supercooled liquids.* (I, Plenary Session)

ICPPP21 Conference 2022 - International Conference on Photoacoustic and Photothermal Phenomena, Bled, Slovenia, 19-24 June 2022. M. Diego, M. Gandolfi, R. Rouxel, F. Vialla, A. Crut, A. Casto, F. Bellussi, M. Fasano, P. Maioli, F. Vallée, N. Del Fatti, F. Banfi: *Ultrafast excitation of water-immersed Carbon Nanotubes: thermophone vs mechanophone effect.* (O)

16^{e} Congres Société Française de Acoustique (SFA), Marseille, France, 11-15 April 2022. M. Diego, M. Gandolfi, S. Peli, S. Danesi, C. Giannetti, I. Alessandri, V. Zannier, V. Demontis, M. Rocci, F. Beltram, L. Sorba, S. Roddaro, F. Rossella, F. Banfi: *Ultrafast photoacoustic assessment of mechanical properties in InAs nanowires.* (O)

16^{e} Congres Société Française de Acoustique (SFA), Marseille, France, 11-15 April 2022. M. Diego, M. Gandolfi, R. Rouxel, F. Vialla, A. Crut, A. Casto, F. Bellussi, M. Fasano, P. Maioli, F. Vallée, N. Del Fatti, F. Banfi: *Accessing Ultrafast Photothermal-Acoustics of Carbon Nanotubes in Water.* (O)

2021 International School of Quantum Electronics, 64th Course: Progress in Photoacoustic and Photothermal Phenomena: Progress in Photoacoustic and Photothermal Phenomena: focus on biomedical, nanoscale, nde, gas sensing, and thermophysical phenomena and technologies, Erice, Italy,16-23 October 2021. F. Banfi, M. Diego, P. Maioli, A. Crut, M. Gandolfi, F. Medeghini, F. Vallée, Natalia Del Fattia: *Ultrafast Thermo-Optical Dynamics of Nanoparticles.* (I)

2021 International School of Quantum Electronics, 64th Course: Progress in Photoacoustic and Photothermal Phenomena: Progress in Photoacoustic and Photothermal Phenomena: focus on biomedical, nanoscale, NDE, gas sensing,

and thermophysical phenomena and technologies, Erice, Italy,16-23 October 2021. M. Diego, M. Gandolfi, R. Rouxel, F. Vialla, A. Crut, A. Casto, F. Bellussi, M. Fasano, P. Maioli, F. Vallée, N. Del Fatti and F. Banfi: *Accessing Ultrafast Photothermal-Acoustic of Multi-Walled Carbon Nanotubes in Water.* (O)

International Conference Material Research Society (MRS) Spring Meeting, 17-23 Avril, 2021, Virtual Meeting (due to COVID19 pandemic). M.Diego, R.Rouxel, F.Medeghini, P.Maioli, F.Rossella, F.Vallee, F.Banfi, A.Crut and N.Del Fatti: *Ultrafast Thermo-Optical Dynamics for Thermal Boundary Resistance Measurements on Single Nano-Objects.* (O)

15th International Congress on Artificial Materials fro Novel Wave Phenomena (METAMATERIALS) 2021, 20-25 September 2021, N.Y, U.S.A. M. Gandolfi, C. Giannetti, F. Banfi: *Temperonic Crystal: A Superlattice for Temperature Waves in Graphene.* (O)

European Optical Society Annual Meeting (EOSAM) 2021, 13-17 September 2021, Rome, Italy. M. Gandolfi, C. Giannetti, F. Banfi: *Temperonic Crystal: A Superlattice for Temperature Waves in Graphene.* (I)

European Optical Society Annual Meeting (EOSAM) 2021, 13-17 September 2021, Rome, Italy. E. Cavaliere, G. Torrisi, F. Banfi, G. Benetti, A. Terrasi, L. Gavioli: *Nanogranular Ag films as transparent conductors in TCO/Ag/TCO multilayers.* (O)

2021 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO Europe and EQEC), 21-25 June 2021 Virtual Meeting (because of COVID19 pandemic). M. Gandolfi, C. Giannetti, F. Banfi: *Temperonic Crystal: A Superlattice for Temperature Waves in Graphene.* (O)

2021 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference (CLEO Europe and EQEC), 21-25 June 2021 Virtual Meeting (because of COVID19 pandemic). M. Gandolfi, F. Banfi, C. Glorieux: *Optical wavelength dependence of photoacoustic signal of gold nanofluid.* (O)

Invited Seminar. May 31st 2021, CETHIL-INSA (Centre d'énergétique et de thermique de Lyon-Institute National des Sciences Appliquées. F. Banfi: *Temperature wave-like propagation on ultrashort time-scales* (I).

Forum Acusticum 2020 (FA2020), 7-11 December 2020, Online meeting (because of COVID19 pandemic). Conference originally scheduled in Lyon, France. G.Benetti, G. Rizzi, S. Peli, M. Gandolfi, C. Giannetti, E. Cavaliere, L. Gavioli, F. Banfi: *Photoacoustic investigation of nanoparticles ultra-thin films.* (O)

European Optical Society Annual Meeting (EOSAM 2020), 7-11 September 2020, Online meeting (because of COVID19 pandemic). Conference originally scheduled in Porto, Portugal. M. Gandolfi, G. Benetti, C. Glorieux, C. Giannetti, F. Banfi: *Temperature wave-like oscillations on ultra-short and ultra-fast time scales.* (I)

4th International Workshop on Laser-Ultrasound for Metals (LUS4Metals), 25-26 September 2019, Linz, Austria. M. Gandolfi, G. Benetti, S. Peli, C.

Giannetti, E. Cavaliere, L. Gavioli, F. Banfi: *Sensing of Trapped Fluids in Nanoporous Thin Metal Films by Picosecond Ultrasonics.* (I)

VISPEC Conference on Emerging Trends in Vibrational Spectroscopy (VISPEC 2019), 11-13 September 2019, Brescia, Italy. S. Danesi, M. Gandolfi, L. Carletti, N. Bontempi, C. De Angelis, F. Banfi and I. Alessandri: *Photo-Induced Heat Generation in Non-Plasmonic Nanoantennas.* (O)

4th EOS Topical Meeting on Optics at the Nanoscale (ONS'19) 9-11 September 2019, Anacapri, Island of Capri, Italy. M. Gandolfi, G. Benetti, S. Peli, C. Giannetti, E. Cavaliere, L. Gavioli, F. Banfi: *Photoacoustic investigation of nanogranular ultra-thin films.* (I)

2019 International Congress on Ultrasonics (ICU), from September 3-6, 2019, Bruges, Belgium. S. Dal Conte, S. Cecchi, R. Calarco, G. Cerullo, F. Banfi: *Coherent oscillations in layered chalcogenides measured by transient reflectivity.* (O)

2019 International Congress on Ultrasonics (ICU), from September 3-6, 2019, Bruges, Belgium. M. Gandolfi, G. Benetti, C. Giannetti, E. Cavaliere, L. Gavioli, F. Banfi: *Photoacoustic investigation of nanogranular ultra-thin films.* (O)

CLEO Europe and EQEC 2019 -2019 Conference on Lasers and Electro-Optics Europe and European Quantum Electronics Conference, June 23-27, 2019, Munich, Germany. L. Carletti, P. Franceschini, A. Perri, F. Preda, D. Polli, A. Tognazzi, C. De Angelis, F. Banfi, S. Pagliara, G. Ferrini, A. P. Pushkarev, S. V. Makarov, C. Giannetti: *Ultrafast All-Optical Tuning of Fano Resonant Halide Perovskite Nanoparticles.* (O)

CLEO Europe and EQEC 2019 -2019 Conference on Lasers and Electro-Optics Europe and European Quantum Electronics Conference, June 23-27, 2019, Munich, Germany. F. Banfi, P. Maioli, A. Crut, M. Gandolfi, F. Medeghini, F. Vallée, N. Del Fatti: *Ultrafast thermo-optical dynamics of Plasmonic Nanoparticles.* (I)

SPIE Photonics West, Ultrafast Phenomena and Nanophotonics XXIII, February 3 - 6, 2019, San Francisco, California, USA. N. Del Fatti, F. Medeghini, A. Crut, M. Gandolfi, P. Maioli, F. Rossella, F. Banfi, F. Vallée: *Ultrafast mechanical and thermal energy transfer investigations on single metal nano-objects.* (I)

PIERS 2019 -Progress In Electromagnetics Research Symposium, June 17-20, 2019, Rome, Italy. M. Gandolfi, G. Mazza, M. Capone, C. Giannetti, F. Banfi: *Novel Heat Transport Regimes in Quantum Correlated Materials.* (I)

SPIE Photonics West, Ultrafast Phenomena and Nanophotonics XXIII, February 3 - 6, 2019, San Francisco, California, USA. N. Del Fatti, F. Medeghini, A. Crut, M. Gandolfi, P. Maioli, F. Rossella, F. Banfi, F. Vallée: *Ultrafast mechanical and thermal energy transfer investigations on single metal nano-objects.* (I)

E-MRS 2019 Spring Meeting, May 27-31, 2019, Nice, France. G. Torrisi, E. Cavaliere, F. Banfi, G. Benetti, R. Raciti, L. Gavioli, A. Terrasi: *Ag cluster beam deposition for TCO/Ag/TCO multilayer.* (O)

SPIE Photonics West, Ultrafast Phenomena and Nanophotonics XXIII, February 3 - 6, 2019, San Francisco, California, USA. N. Del Fatti, F. Medeghini, A. Crut, M. Gandolfi, P. Maioli, F. Rossella, F. Banfi, F. Vallée: *Ultrafast mechanical and thermal energy transfer investigations on single metal nano-objects.* (I)

IS-TCMS 7th International Symposium Transparent Conductive Materials, October 14-19, 2018, Crete, Greece. G.Torrisi, E. Cavaliere, F. Banfi, G. Benetti, R. Raciti, L. Gavioli, A. Terrasi: *Transparent conductors made with Ag nanoclusters in TCO/Ag/TCO multilayers.* (O)

Plasmomica 2018, July 4-6, 2018, Florence, Italy. S. Danesi, M. Gandolfi, L. Carletti, N. Bontempi, C. De Angelis, F. Banfi, I. Alessandri: *Photo-Induced Heat Generation in Plasmonic vs Non-Plasmonic Nanoantennas.* (O)

Workshop CECAM - Hot Colloids, June 11-13, 2018, Lyon, France. P. Maioli, A. Crut, M. Gandolfi, F. Medeghini, F. Banfi, F. Vallée and N. Del Fatti: *Ultrafast Thermo-optical Dynamics of Plasmonic NanoparticlesAA.* (O)

15th Int. Conf. on near-field optics, nanophotonics and related techniques, 26-31 August 2018, Troyes, France. A. Crut, F. Medeghini, M. Gandolfi , F. Rossella, P. Maioli, F. Vallée, F. Banfi and N. Del Fatti: *Morphology dependence of the vibrational quality factors of single nano-objects.* (O)

Twentieth Symposium on Thermophysical Properties, June 24-29, 2018, Boulder, CO, USA. M. Gandolfi, S. Danesi, L. Carletti, N. Bontempi, C. De Angelis, F. Banfi, I. Alessandri: *Photo-Induced Heat Generation in Non-Plasmonic Nanoantennas.* (O)

Twentieth Symposium on Thermophysical Properties, June 24-29, 2018, Boulder, CO, USA. M. Gandolfi, F. Medeghini, A. Crut, T. Stoll, F. Rossella, S. Hermelin, P. Maioli, F. Vallée, N. Del Fatti, G. Ferrini, C. Giannetti and F. Banfi: *Ultrafast thermo-optical dynamics of metal nano-objects in a transparent environment.* (O)

Twentieth Symposium on Thermophysical Properties, June 24-29, 2018, Boulder, CO, USA. M. Gandolfi, G. Mazza, M. Capone, G. Ferrini, C. Giannetti, F. Banfi: *Temperonic Crystals: coherence effects of temperature fields in Quantum Metamaterials.* (O)

Invited Seminar. June 27th 2018, Dipartimento di Fisica, Università di Pavia. F. Banfi: *From nanomechanics of granular films to temperonic quantum materials* (I).

Invited Seminar: February 8th 2018, Institut de Mécanique et Ingénierie (I2M), Université de Bordeaux, Bordeaux, France. F. Banfi: *From nanomechanics of granular films to temperonic quantum materials.*(I)

FisMat, 1-5, October 2017, Trieste, Italy. M. Gandolfi, G. Mazza, M. Capone, G. Ferrini, C. Giannetti and F. Banfi: *Temperonic Crystals: coherence effects of temperature fields in Quantum Metamaterials.* (I)

3rd EOS Topical Meeting on Optics at the Nanoscale (ONS'17) 10-14 September 2017, Anacapri, Island of Capri, Italy. F. Banfi, M. Gandolfi, S. Peli, F. Medeghini, P. Maioli, A. Crut, F. Vallée, N. Del Fatti, C. Giannetti,

G. Ferrini: *Aspects of ultrafast thermomechanics at the nanoscale.* (I)

Invited Seminar: May 25th 2017, Dipartimento SBAI, Univaristà La Sapienza, Rome, Italy. F. Banfi: *All-optical acoustic nanometrology:from phononic crystals to a single nano-object.* (I)

E-MRS Spring Meeting Strasbourg 2017, 22-26 May 2017, Strasbourg, France. G. Benetti, S. Peli, E. Cavaliere, C. Giannetti, G. Ferrini, N. Winckelmans, S. Bals, J. Verbeeck, M. Chiodi, C. Caddeo, C. Melis, M. J. Van Bael, L. Gavioli, F. Banfi: *Nanometrology of metallic nanoparticles thin films: a multimodal approach.* (O)

E-MRS Spring Meeting Strasbourg 2017, 22-26 May 2017, Strasbourg, France. G. Benetti, S. Peli, E. Cavaliere, M. Gandolfi, C. Giannetti, G. Ferrini, C. Cancellieri, M. Chiodi, M. Van Bael, F. Banfi, L. Gavioli: *Direct synthesis of Ag nanoparticle coatings by cluster beam deposition : mechanical and antimicrobial properties.* (O)

E-MRS Spring Meeting Strasbourg 2017, 22-26 May 2017, Strasbourg, France. M. Gandolfi, G. Mazza, M. Capone, G. Ferrini, C. Giannetti and F. Banfi: *Temperonic Crystals: coherence effects of temperature fields in Quantum Metamaterials.* (O)

E-MRS Spring Meeting Strasbourg 2017, 22-26 May 2017, Strasbourg, France. M. Gandolfi, F. Medeghini, A. Crut, T. Stoll, F. Rossella, S. Hermelin, P. Maioli, F. Vallée, N. Del Fatti, G. Ferrini, C. Giannetti and F. Banfi: *Ultrafast thermo-optical dynamics of metal nano-objects in a transparent environment.* (O)

Metallic Nano-Objects (MNO 2016), 2-4 November 2016, Lyon, France. M. Gandolfi, T. Stoll, F. Medeghini, S. Calati, F. Rossella, G. Ferrini, C. Giannetti, F. Banfi, S. Hermelin, P. Maioli, A. Crut, F. Vallée and N. Del Fatti: *Ultrafast thermo-optical dynamics of metal nano-objects in a transparent environment.* (O)

Nano 2016, XIII International Conference on Nanostrucutred Materials, August 7-12, 2016 Quebec City, Canada: G. Benetti, S. Peli, E. Cavaliere, M. Gandolfi, C. Giannetti, G. Ferrini, C. Cancellieri, M. Chiodi, L. Gavioli, M. Van Bael and F. Banfi: *Mechanical Properties Of Ag Nanoparticle Thin Films.* (O)

Trends in Nanotechnology (TNT2016), September 5-9, 2016 Fribourg, Switzerland. S. Peli, G. Benetti, E. Cavaliere, M. Gandolfi, C. Giannetti, G. Ferrini, C. Cancellieri, M. Chiodi, L. Gavioli, M.Van Bael, F. Banfi: *Mechanical Properties Of Ag Nanoparticle Thin Films.* (O)

5th International Symposium on Laser-Ultrasonics and Advanced Sensing, July 4-6, 2016, Linz, Austria. S. Peli, M. Travagliati, D. Nardi, C. Giannetti, V. Gusev, G. Ferrini, F. Banfi: *All-optical Thermomechanical Nanometrology at Interfaces: Novel Schemes.* (I)

IEEE Sensors 2014, November 2-5, 2014, Valencia, Spain. D. Nardi, M. Murnane, H. Kapteyn, M. Travagliati, G. Ferrini, C. Giannetti, and F. Banfi: *Impulsively excited Surface Phononic Crystals: A route towards novel sensing schemes.* (O)

Theme meeting on Ultrafast Science UFS-2014 , October 30 - November 1, 2014, Manipal, India. D. Nardi, M. Murnane, H. Kapteyn, M. Travagliati, G. Ferrini, C. Giannetti, and F. Banfi: *Impulsively excited Hypersonic Surface Phononic Crystals: from first principles to applications.* (I)

Invited Seminar: October 22nd 2014, Kolkatta (India). D. Nardi, M. Travagliati, M. Siemens, M. Murnane, H. Kapteyn, G. Ferrini, and F. Banfi: *Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (I)

Invited Seminar: October 24th 2014, Indian Institute of Technology, Kharagpur (India). D. Nardi, M. Travagliati, M. Siemens, M. Murnane, H. Kapteyn, G. Ferrini, and F. Banfi: *Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (I)

Invited Seminar: October 25th 2014, KIIT University, Bhubaneswar (India). D. Nardi, M. Travagliati, M. Siemens, M. Murnane, H. Kapteyn, G. Ferrini, and F. Banfi: *Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (I)

Invited Seminar: October 28th 2014, Indian Institute of Technology, Mumbai (India). D. Nardi, M. Travagliati, M. Siemens, M. Murnane, H. Kapteyn, G. Ferrini, and F. Banfi: *Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (I)

7th International Discussion Meeting on Relaxation in Complex Systems, July 21-26 2013, Barcelona, Spain. D. Nardi, M. Travagliati, M. Siemens, M. Murnane, H. Kapteyn, G. Ferrini and F. Banfi: *Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals.* (I)

Invited Seminar: June 20th 2013, Institute for Molecules and Materials, Radboud University, Nijmegen (Netherlands). D. Nardi, M. Travagliati, M. Siemens, M. Murnane, H. Kapteyn, G. Ferrini, P. Pingue and F. Banfi: *Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (I)

International Congress on Ultrasonics, 2-5 May 2013, Singapore. D. Nardi, M. Travagliati, M.E. Siemens, Q. Ling, M.M. Murnane, H.C. Kapteyn, G. Ferrini, F. Parmigiani, P. Pingue and F. Banfi: *Impulsively Excited Psudosurface Acoustic Waves in Hypersonic Phononic Crystals.* (I).

BioNanoMed 2013: 13-15 March 2013, Krems, Austria. F. Banfi, C. Giannetti and G. Ferrini: *A multimodal approach to time-resolved optical nanoscopy* (O).

Invited Seminar. September 10th 2012, Dipartimento di Fisica, Università di Pavia. F. Banfi: *Probing Thermomechanics at the Nanoscale: Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (I).

18th Symposium on Thermophysical Properties: 24 - 29 June 2012, Boulder, CO (USA). F. Banfi, V. Juvé, D. Nardi, S. Dal Conte, C. Giannetti, G. Ferrini, N. Del Fatti and F. Vallée: *Temperature dependence of the thermal boundary resistivity of glass-embedded metal nanoparticles* (O).

PHONONS 2012-14th International Conference on Phonon Scattering in Condensed Matter: 8-12 July 2012, Ann Arbor, MI (USA). D. Nardi, M.

Travagliati, M. E. Siemens, Q. Li, M. M. Murnane, H. C. Kapteyn, G. Ferrini, F. Parmigiani, and F. Banfi: *Probing Thermomechanics at the Nanoscale: Impulsively Excited Pseudosurface Acoustic Waves in Hypersonic Phononic Crystals* (O).

PHONONS 2012-14th International Conference on Phonon Scattering in Condensed Matter: 8-12 July 2012, Ann Arbor, MI (USA). F. Banfi, V. Juvé, D. Nardi, S. Dal Conte, C. Giannetti, G. Ferrini, N. Del Fatti and F. Vallée: *Temperature dependence of the thermal boundary resistivity of glass-embedded metal nanoparticles* (O).

APS March Meeting 2012, Boston, Massachusetts (USA). D. Nardi, Q. Li, K. Hoogenboom-Pot, M. Murnane, H. Kapteyn, M. Siemens, M. Travagliati, F. Parmigiani, G. Ferrini and F. Banfi: *Probing Thermomechanics at the Nanoscale: Impulsively Excited Pseudo-surface Acoustic Waves in Hypersonic Phononic Crystals* (O).

Laser Optics 2012, St. Petersburg (RUS), June 25-29 2012. G. Galimberti, F. Banfi, C. Giannetti, S. Pagliara and G. Ferrini: *Optical and mechanical investigations of nanostructures. A perspective for the integration of atomic force spectroscopy and ultrafast optics* (I).

MNE 2010 - 36th International conference on Micro and Nano Engineering: September 19-22, 2010, Genova, Italy. M. Travagliati, D. Nardi, F. Banfi, V. Piazza, P. Pingue *Thermomechanical decoupling in hypersonic phononic crystals* (P).

Invited Seminar: June 28th, 2010, Zernike Institute-University of Groningen, Groningen, Netherlands. F. Banfi:*Probing metals and metal-based nanostructures with short laser pulses.*

PHONONS 2010-13th International Conference on Phonon Scattering in Condensed Matter: 19-23 April 2010,Taipei, Taiwan. D. Nardi, F. Banfi, C. Giannetti, B. Revaz, G. Ferrini, and F. Parmigiani:*Thermomechanics of Hypersonic Surface Phononic Crystals* (O).

PHONONS 2010-13th International Conference on Phonon Scattering in Condensed Matter: 19-23 April 2010,Taipei, Taiwan. F. Banfi, F. Pressacco, B. Revaz, C. Giannetti, D. Nardi, G. Ferrini, and F. Parmigiani:*All-Optical Time-Resolved Nanocalorimetry* (O).

Invited Seminar: December 17nd, 2008, Sincrotrone Trieste-ELETTRA, Trieste. F. Banfi, F. Pressacco, D. Nardi, C. Giannetti, G. Ferrini, B. Revaz and F. Parmigiani:*Thermo-mechanics of a phononic Crystal investigated by pump-probe Optical techniques.*

Invited Seminar: December 2nd, 2008, SFB Augsburg,Universiyt of Augsburg, Augsburg (Germany). F. Banfi, F. Pressacco, D. Nardi, C. Giannetti, G. Ferrini, B. Revaz and F. Parmigiani:*Thermo-mechanics of a phononic Crystal investigated by pump-probe Optical techniques.*

Nanoscience and Nanotechnology 08, 22-23 October 2008, Frascati (Italy). F. Banfi, F. Pressacco, D. Nardi, C. Giannetti, G. Ferrini, B. Revaz and F. Parmigiani: *Thermomechanical Behaviour of surface acoustic waves in ordered arrays of nanodisks studied by NIR pump-probe diffraction experimnet* (I).

Son et Lumiére: from microphotonics to nanophononics, September 1-13 2008, Cargése, (France). F. Banfi, F. Pressacco, D. Nardi, C. Giannetti, G. Ferrini, B. Reavaz and F. Parmigiani: *Proposal for an all-optical nano-calorimetric technique and Birth of a hypersonic surface acoustic wave* (P).

PHONONS 2007: July 17-20 2007, Paris, France. C. Giannetti, F. Banfi, D. Nardi, G. Ferrini, B. Revaz and F. Parmigiani: *Coherent Optical Excitation of Surface Acoustic Waves in Lattices of Metallic Nanostructures* (O).

AMO Seminars: 15 February 2007, University of British Columbia, Vancouver, Canada. F. Banfi, C.Giannetti, D.Fausti, S. Pagliara, G. Ferrini, B. Revaz and F. Parmigiani: *Non-linear photoemission in Ag(100): Image Potential States and Above Threshold Photoemissio.*

High QE Photocathodes for rf guns, October 4th 2006, Milan (Italy). E. Pedersoli, F. Banfi, G. Ferrini, P.G. Galimberti, C. Giannetti, S. Pagliara, F. Parmigiani, J.N. Corlett, S.M. Lidia, B. Ressel: *Quantum Efficiency Dependence on the Incidence Light Angle in Copper Photocathodes: Vectorial Photoelectric Effect* (O).

Comsol Conference, Milano (Italy), November 14, 2006. B. Revaz, C. Giannetti, F. Banfi, G. Ferrini, P. Vavasori, V. Metlushko, and F. Parmigiani: *Numerical analysis of the elastic and thermodynamic properties of metallic nano-objects arrays* (O).

Comsol Conference, Milano (Italy), November 14, 2006. B. Revaz, C. Giannetti, F. Banfi, G. Ferrini, P. Vavasori, V. Metlushko, and F. Parmigiani: *Numerical analysis of the elastic and thermodynamic properties of metallic nano-objects arrays* (P)

FEL 2005, 21-26 August 2005, Palo Alto, California (U.S.A). F. Banfi, G. Ferrini, P.G. Galimberti, C. Giannetti, S. Pagliara, F. Parmigiani, E. Pedersoli, J.N. Corlett, S.M. Lidia, B. Ressel: *Quantum Efficiency Measurements of Femtosecond Vectorial Photoemission on Cu Photocathodes.*

FEL 2005, 21-26 August 2005, Palo Alto, California (U.S.A). F. Banfi, G. Ferrini, P.G. Galimberti, C. Giannetti, S. Pagliara, F. Parmigiani, E. Pedersoli, J.N. Corlett, S.M. Lidia, B. Ressel: *Monte Carlo Transverse Emittance Study on Cs_2Te.*

2005 Particle Accelerator Conference, May 16-20, 2005, Knoxville, Tennessee (U.S.A). F. Banfi, G. Ferrini, P.G. Galimberti, C. Giannetti, S. Pagliara, F. Parmigiani, E. Pedersoli, B. Ressel J.N. Corlett, S.M. Lidia: *Quantum Efficiency Measurements of Femtosecond Vectorial Photoemission on Cu Photocathodes.*

2005 Particle Accelerator Conference, May 16-20, 2005, Knoxville, Tennessee (U.S.A). F. Banfi, G. Ferrini, P.G. Galimberti, C. Giannetti, S. Pagliara, F. Parmigiani, E. Pedersoli, B. Ressel J.N. Corlett, S.M. Lidia: *Monte Carlo Transverse Emittance Study on Cs_2Te.*

ECOSS 23: European Conference on Surface Science, Berlin (D), September 4-9, 2005. Gabriele Ferrini, Stefania Pagliara, Gianluca Galimberti, Emanuele Pedersoli, Claudio Giannetti, Francesco Banfi and Fulvio Parmigiani:*Above threshold photoemission from Cu(111)* (P).

Beyond Einstein: Physics for the 21st Century (EPS13), Bern (CH), July 11-15, 2005. Gabriele Ferrini, Claudio Giannetti, Stefania Pagliara, Francesco Banfi, Gianluca Galimberti, Emanuele Pedersoli and Fulvio Parmigiani: *Photo-induced non-equilibrium electron population in metals* (P).

X International Conference on Crystal Chemistry of Intermetallic Compounds, Lviv, (Ukraine), September 20-24, 2005. O. Zaremba, O. Shcherban, R. Gladyshevskii, F. Banfi, E. Giannini: *The 5:7 member of the spin-ladder series in the Bi-Sr-Ca-Cu-O system.*

XIV International Conference on Vacuum Ultraviolet Radiation Physics VUV XIV, Cairns (AUS), July 19-23, 2004. G. Ferrini, C. Giannetti, S. Pagliara, F. Banfi, G. Galimberti, F. Parmigiani: *Violation of the electric dipole selection rules in indirect multiphoton excitation of image potential states on Ag(100)* (P).

Workshop on Recent Trends in Nonlinear Optics and Ultra-Short Pulses Generation, 15-15 June 2003, Pavia (Italy). G. Ferrini, D. Fausti, C. Giannetti, F. Banfi, G. Galimberti, M. Peloi, S.Pagliara, F. Parmigiani: *Effective mass and momentum-resolved intrinsic linewidth of image-potential states on Ag(100)* (P).

INFMEETING 2003, Genova (Italy) 23-26 June 2003. F.Banfi, GP. Banfi, C.Giannetti, M.Peloi, D.Fausti, G.Galimberi, S.Pagliara, G.Ferrini and F.Parmigiani: *Anomalous photoemission from Ag(100) in the femtosecond regime* (P).

INFMEETING 2003, Genova (Italy), 23-26 June 2003. C.Giannetti, F.Banfi, M.Peloi, D.Fausti, G.Galimberi, S.Pagliara, G.Ferrini and F.Parmigiani: *Effective mass and momentum resolved intrinsic linewidth of image potential states on Ag(100)* (P).

INFMEETING 2000, Genova (Italy), 12-16 June 2000. F.Banfi, V.Bellani, I.Gomez, E.Diez and F.Dominguez-Adame: *Energy filters using Gaussian superlattices* (P).

LXXXV Congresso Nazionale Societá Italiana di Fisica, Pavia (Italy), 20-24 September 1999,. V.Bellani, E.Diez, R.Hey, G.B.Parravicini, I.Gomez, F.Banfi and F.Domiguez-Adame: *Superreticoli a semiconduttore con potenziali modulati per applicazioni optoelettroniche* (P).

SCHOOLS

Son et lumière: from microphotonics to nanophononics, September 1-13, 2008, Cargèse, Corse, France.

Winter College on Biophotonics, February 10-21 2003, Trieste, Italy.

Summer School in 'Advances in Microstructural Characterization of Optoelectronic Materials', 5-11 September 1999, Avila, Spain.

EDITORIAL AND REVIEWER ACTIVITY

Guest Editor for *Nanomaterials* for the special issue on *Thermal and Mechanical Dynamics in Nanosystems*. Year 2020.

Guest Editor for *Nano Express* (IOP Publishing) for the *Focus on Non-Fourier Thermal Transport*.

Member of the Board of Editors of the *European Physical Journal Plus*. February 25, 2022 to December 31, 2027.
Editor in charge, together with Prof. Danilo Bersani, of the "Focus Point on Progress Reports in Experimental Physics and Techniques" of the European Physical Journal Plus (Springer).

Reviewer for APS, AIP, ACS, Nature, MDPI and ELSEVIER Journal series.

CONFERENCES ORGANIZATION

Thematic workshop *"Beyond Fourier"*, 9 Septembre 2022, Espace Hamelin, Paris, France. Workshop sponsored by Société Française de Thermique, CNRS, GDR NAME.

FisMat 2025, 7-11 July 2025, Università Cá Foscari - Campus San Giobbe, Venice, Italy.
Co-organiser of the Thematic workshop *"Ultrafast mechanical and thermal dynamics"*.

International Summer School Son et Lumière SEL2025, 18-29 August 2025, Observatoire Océanologique, Banyuls-sur-Mer, France.
Scientific committee member.

Curriculum Vitae redatto ai sensi degli Artt. 46 e 47 del DPR. 28.12.2000, n.445.

Il sottoscritto Francesco Banfi
nato a Pavia
il 06/04/1974,
attualmente residente a LYON in 152 boulevard Yves Farge, c.a.p. 69007,
codice fiscale BNFFNC74D06G388G,

a conoscenza di quanto prescritto dall' art. 76 della D.P.R. 28 dicembre 2000, n. 445, sulla responsabilità penale cui può andare incontro in caso di dichiarazioni mendaci,

DICHIARA che:

quanto riportato nel presente Curriculum Vitae corrisponde al vero.

Lyon, August 26, 2025

Firma