

CURRICULUM VITAE

Federico Cilento

PERSONAL INFORMATION

Name, Surname	Federico Cilento
Address	Via Tiziano Vecellio 11, 34129 Trieste, Italy
Date of Birth	24-04-1983
Place of Birth	Cremona, Italy
Nationality	Italian
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Personal Webpage	www.elettra.trieste.it/People/FedericoCilento
Institution	Elettra – Sincrotrone Trieste S.C.p.A., Strada Statale 14, km 163.5, 34149 Basovizza, Trieste, Italy

EDUCATION

1997-2002	Diploma di Maturità Scientifica Liceo Scientifico Statale “G. Aselli” – Cremona Grade: 98/100
2002-2005	Bachelor Degree in Physics Università Cattolica del Sacro Cuore – Brescia Thesis Title: “Dinamiche Strutturali di Nanosistemi Ordinati Eccitati da Impulsi Laser Ultracorti” Supervisor and Assistant Supervisor: Dr. Gabriele Ferrini, Prof. Fulvio Parmigiani Grade: 110/110 with ‘Lode’ – Link to PDF version
2005-2007	Master Degree in Physics Università Cattolica del Sacro Cuore – Brescia Thesis Title: “Dinamiche Elettroniche Fotoindotte in Superconduttori ad Alta Temperatura Critica” Supervisor and Assistant Supervisor: Dr. Gabriele Ferrini, Dr. Claudio Giannetti Grade: 110/110 with ‘Lode’ – Link to PDF version
2009-2011	PhD in Physics c/o the University of Trieste – Physics Department Research Activity performed c/o the Elettra Synchrotron (T-ReX), Basovizza, Trieste Title: “Non-equilibrium phase diagram of Bi2212 cuprate superconductors revealed by ultrafast optical spectroscopy” Supervisor: Prof. Fulvio Parmigiani – Link to PDF version

WORKING EXPERIENCES

2008	Collaboration Contract c/o the Università Cattolica del Sacro Cuore – Brescia (DMF, Department of Mathematics and Physics, Elphos Laboratory) Activity: Setting-up and characterization of a system for ultrafast time-resolved (pump/probe) optical spectroscopy with supercontinuum probe.
2012	Collaboration Contract c/o the Elettra Synchrotron, Basovizza, Trieste Activity: Study of surface states and Fermi surfaces in materials with a strong electronic correlation, particularly HTSC and topological insulators, through time-resolved ARPES (Angular Resolved PhotoEmission Spectroscopy). Development of optical systems, control electronics and TOF (time-of-flight) detector.

2012-2016	Four-Years Postdoc Position at the T-ReX Laboratory, FERMI@Elettra Project, Elettra – Sincrotrone Trieste S.C.p.A. (Trieste, Italy). Aim of the position was to develop ultrafast, time-resolved optical and photoelectron spectroscopies for the new T-ReX facility, opened to users in 2016/2017. During the project, the design and specifications of the new T-ReX facility in the FERMI Experimental Hall has been developed. The T-ReX Laboratory has been moved and successfully commissioned. Several upgrades to the scientific instrumentation have been performed, including the laser sources and the hemispherical analyzer. An ultrafast 9.3 eV photon source and an advanced HHG source were developed. The scientific activity included the study of cuprate and iron-based superconductors with both optical and photoelectronic ultrafast probes, TR-ARPES studies on graphene and on topological insulators, and time-resolved optical spectroscopic studies of several compounds. These studies have led to the publication of more than 15 papers. Several proposals for beamtime to national and international facilities have been written and obtained. The scientific results have been presented at international conferences and workshops.
Since 2016	Scientist in charge of the T-ReX Laboratory and Facility Elettra – Sincrotrone Trieste S.C.p.A. (Trieste, Italy) T-ReX is the facility for table-top ultrafast time-resolved spectroscopies at FERMI Since January 2017 I am also TSL for Elettra – Sincrotrone Trieste and CNR-IOM Since A.Y. 2018/19 I am teaching Photonics at the University of Trieste, Physics Dept.

RESEARCH INTERESTS

My research activity is devoted to the study of the equilibrium and non-equilibrium properties of complex materials displaying exotic and intertwined phases, like superconductivity, charge-order, magnetism and topology. My approach to face the problem exploits time-resolved spectroscopies, both optical and photoelectronic, based on ultrashort (*fs*) laser pulses combined in a pump-and-probe scheme. Indeed, the study of phases of matter under non-equilibrium conditions can reveal new and interesting phenomena about the material under scrutiny, that are hidden at equilibrium. My research activities are based on novel time resolved spectroscopies, including time-resolved optical spectroscopy with ultra-broadband probe (in the UV-VIS-NIR) and time- and angle-resolved photoelectron spectroscopy (TR-ARPES) with probe in the near- and extreme-ultraviolet. I developed novel ultrafast sources producing **9.3 eV and 10.8 eV** ultrashort pulses at **>1 MHz** and a beamline for **narrowband (<20 meV) high-harmonics** at high-repetition rate for TR-ARPES studies. These sources are important for the study of the non-equilibrium electronic properties of complex materials over their entire Brillouin Zone.

RESEARCH EXPERIENCE

- Study of time-resolved, non-equilibrium optical properties of superconducting materials (Copper and Iron Oxides) and in general of systems with a strong electronic correlation.
- Development of models to describe the out-of-equilibrium optical properties of a material.
- Deep knowledge and experience as operator and user of several kinds of laser systems (oscillators, amplified systems) and optical devices, design of pump-probe setups, ultrafast spectroscopy with laser radiation in the UV, visible, near-IR and mid-IR spectral regions, high-harmonic generation.
- Knowledge and design of systems for Angular-Resolved-Photoelectron-Spectroscopy (ARPES), also in combination with high-harmonic generation sources for TR-ARPES studies.
- Experience as a user at facilities based on high-harmonic generation and familiarity with experiments at beamlines exploiting synchrotron and free-electron-laser radiation.

SCHOOLS, CONFERENCES AND WORKSHOPS

1. (2009) “XIV Training course on the physics of strongly correlated systems”
Vietri sul Mare (SA, Italy), 5-16 October 2009, <http://scs.physics.unisa.it/TCXIV/>
2. (2010) “XV Training course on the physics of strongly correlated systems”
Vietri sul Mare (SA, Italy), 4-15 October 2010, <http://scs.physics.unisa.it/TCXV/>
3. LEES 2010 (Low Energy Electrodynamics in Solids)
Les Diablerets (Switzerland), 5-10 July 2010
4. NGSCES 2012 (New Generation in Strongly Correlated Electronic Materials)
Portoroz (Slovenia), 25-29 June 2012
5. ICES2012 (12th International Conference on Electronic Structure and Spectroscopy)
Saint Malo (France), 16-21 September 2012
6. NGSCES 2013 (New Generation in Strongly Correlated Electronic Materials)
Sestri Levante (Italy), 30 June – 05 July 2013
7. ICTP, *Conference on Ultrafast Dynamics of Correlated Materials*
Trieste (Italy), 14-18 October 2013
8. ICTP, *Conference on Frontiers of Condensed Matter Physics*
Trieste (Italy), 11-15 November 2014
9. REGINA, *Workshop on Research on Graphene: Growth, Characterization and Applications*
Trieste (Italy), 3-4 December 2013
10. PIPT5 (Photoinduced Phase Transitions and Cooperative Phenomena)
Bled (Slovenia), 8-13 June 2014
11. NGSCES 2014 (New Generation in Strongly Correlated Electronic Materials)
Nice (France), 16-20 June 2014
12. LEES 2014 (Low Energy Electrodynamics in Solids)
Loire Valley (France), 29 June – 04 July 2014
13. SuperFOx 2014 (Superconductivity and Functional Oxides)
Rome (Italy), 24-26 September 2014
14. ICTP, *Workshop on Probing and Understanding Exotic Superconductors and Superfluids*
Trieste (Italy), 27-31 October 2014
15. Elettra, *Workshop on INTEGRATING TABLE-TOP LASER, SEEDED-FREE ELECTRON LASER AND STORAGE RING SOURCES FOR TIME RESOLVED SPECTROSCOPIES (NFFA/T-REX)*
Trieste (Italy), 1-2 December 2014

16. SCSR 2014, Workshop on Novel Superconductors and Synchrotron Radiation: state of the art and novel perspectives
Trieste (Italy), 10-11 December 2014
17. M2S 2015 (Materials and Mechanisms of Superconductivity)
Geneva (Switzerland), 23-28 August 2015
18. TRENDOXIDES 2015, Workshop on New TRENDS in Correlated OXIDES and Interfaces
Brescia (Italy), 16-18 November 2015
19. Krvavec 2015, Workshop on Non-Equilibrium Phenomena in Quantum Matter: new observations and new theories
Krvavec (Slovenia), 13-16 December 2015
20. GRC 2016, Ultrafast Phenomena in Cooperative Systems (Gordon Research Conference)
Revealing Coupled Interactions in Complex Matter – Towards Control of Material Properties
Barga (Lucca, Italy), 14-19 February 2016
21. SNS 2016, Spectroscopies in Novel Superconductors
Ludwigsburg (Stuttgart, Germany), 19-24 June 2016
22. Science@FELs 2016
Trieste (Italy), 5-7 September 2016
23. SuperFOx 2016
Torino (Italy), 19-21 September 2016
24. NGSCES 2016 (New Generation in Strongly Correlated Electronic Materials)
Trieste (Italy), 26-30 September 2016
25. UDSCS 2016 (Second Workshop on Ultrafast Dynamics in Strongly Correlated Systems)
Villigen (Switzerland), 10-12 October 2016
26. Krvavec 2016, Workshop on Non-Equilibrium Phenomena in Quantum Systems
Krvavec (Slovenia), 17-21 December 2016
27. TPES 2017, Time-resolved Photoelectron Spectroscopy from tabletop UV and HHG laser sources, Synchrotrons and FELs: experiments and challenges
Trieste (Italy), 25-27 January 2017
28. SCES 2017, International Conference on Strongly Correlated Electron Systems
Prague (Czech Republic), 17-21 July 2017
29. Artemis, Octopus and ULTRA User Meeting 2017
St Catherine's College, Oxford (United Kingdom), 5-7 September 2017
30. FisMat 2017, Italian National Conference on the Physics of Matter
Trieste (Italy), 1-6 October 2017

31. ICUSD 2017, International Conference on Ultrafast Structural Dynamics
Trieste, 5-7 December 2017
32. Krvavec 2017, Workshop on Nonequilibrium Phenomena in Quantum Systems
Krvavec (Slovenia), 17-20 December 2017

TALKS

1. Invited Talk at TRR-80, Augsburg University (May 2012)
The Phase Diagram of $\text{Bi}_2\text{Sr}_2\text{Ca}_{0.92}\text{Y}_{0.08}\text{Cu}_2\text{O}_{8+\delta}$ cuprate superconductors revealed by non-equilibrium optical spectroscopy.
2. Contributed Talk at NGSCES 2013 (July 2013)
Drawing a Phase Diagram for High-Tc Cuprates by out-of-equilibrium spectroscopies.
3. Contributed Talk at PIPT5 (June 2014)
Photo-Enhanced Antinodal Conductivity in the Pseudogap Phase of High-Tc cuprates.
4. Contributed Talk at NGSCES 2014 (June 2014)
Photo-Enhanced Antinodal Conductivity in the Pseudogap Phase of High-Tc cuprates.
5. Contributed Talk at LEES 2014 (July 2014)
Photo-Enhanced Antinodal Conductivity in the Pseudogap Phase of High-Tc cuprates.
6. Contributed Talk at SuperFOx 2014 (September 2014)
Photo-Enhanced Antinodal Conductivity in the Pseudogap Phase of High-Tc cuprates.
7. Invited Talk at SCSR 2014 (December 2014)
Photo-Enhanced Antinodal Conductivity in the Pseudogap Phase of High-Tc cuprates.
8. Contributed Talk at M²S 2015 (August 2015)
Photo-Enhanced Antinodal Conductivity in the Pseudogap Phase of High-Tc cuprates.
9. Invited Talk at TRENDOXIDES 2015 (November 2015)
Time-resolved XUV photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
10. Invited Talk at KRVAVEC 2015 (December 2015)
Time-resolved XUV photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
11. Contributed Talk at GRS (Gordon Research Seminar) 2016 (February 2016)
Time-resolved XUV photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
12. Contributed Talk at SNS 2016 (June 2016)
Time-resolved XUV photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
13. Contributed Talk at Science@FELs 2016 (September 2016)
Table-top ultrafast optical and photoelectron spectroscopies provide a new clue for understanding the relaxation dynamics in copper oxides.

14. Contributed Talk at SuperFOx 2016 (September 2016)
Time-resolved XUV Photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
15. Contributed Talk at NGSCES 2016 (September 2016)
Time-resolved XUV Photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
16. Contributed Talk at UDSCS 2016 (October 2016)
Time-resolved XUV Photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
17. Invited Talk at Krvavec 2016 (December 2016)
Table-top ultrafast optical and photoelectron spectroscopies shed new light on the relaxation dynamics in copper oxides.
18. Contributed Talk at TPES 2017 (January 2017)
The T-ReX Laboratory and Facility at FERMI: Status and Future Perspectives.
19. Contributed Talk at Artemis, Octopus and ULTRA User Meeting 2017 (Sep 2017)
Understanding the Ultrafast Dynamics in Copper Oxides.
20. Contributed Talk at FisMat 2017 (October 2017)
Antinodal collapse in superconducting copper oxides driven by charge-transfer manipulation.
21. Contributed Talk at ICUSD 2017 (December 2017)
Time-resolved XUV photoemission: a new clue for understanding the ultrafast dynamics in copper oxides.
22. Invited Talk at KRVAVEC 2017 (December 2017)
Non-equilibrium dynamics in WTe₂ revealed by optical and photoelectron spectroscopies.

ACCEPTED PROPOSALS AT INTERNATIONAL FACILITIES

1. Manipulation of the superconducting gap in high-temperature superconductors via short THz pulses.
FELBE @ HZDR, Dresden (Germany)
2. Time resolved ARPES study of out-of-equilibrium topological insulator: photo-induced phase transition between non trivial-to-trivial topology.
ARTEMIS @ CLF @ RAL, Didcot, Oxfordshire (United Kingdom)
3. Addressing the electron-phonon coupling in graphene in the time-domain.
ARTEMIS @ CLF @ RAL, Didcot, Oxfordshire (United Kingdom)
4. Directly observing the ultrafast dynamics of massive Dirac fermions in bilayer graphene.
ARTEMIS @ CLF @ RAL, Didcot, Oxfordshire (United Kingdom)
5. Unveiling the role of the Mott-like electronic excitations in high-temperature superconductivity by time-resolved photoemission.
ARTEMIS @ CLF @ RAL, Didcot, Oxfordshire (United Kingdom)

6. Unveiling the electron dynamics at the quantum critical point in copper oxides.
HFML, Nijmegen (The Netherlands)
7. Tr-ARPES study of anatase TiO₂: Electron-hole timing in a photoactive material.
ARTEMIS @ CLF @ RAL, Didcot, Oxfordshire (United Kingdom)
8. Unfolding the relation between charge order and the dynamics of quasiparticles and oxygen states in cuprate superconductors.
ARTEMIS @ CLF @ RAL, Didcot, Oxfordshire (United Kingdom)
9. Unveiling the role of the Mott-like electronic excitations in high-temperature superconductivity by O 1s and Cu 2p time-resolved X-ray photoemission.
FLASH Free Electron Laser, Hamburg (Germany)
10. Ultrafast optical manipulation of the extreme magnetoresistance in WTe₂
HFML, Nijmegen (The Netherlands)

ORGANIZATION OF SCIENTIFIC MEETINGS

2014, Workshop on Integrating Table-Top Laser, Seeded-Free Electron Laser and Storage Ring Sources for Time Resolved Spectroscopies.

Co-Organizer, Trieste, Italy

<https://www.elettra.eu/events/2014/NFFA/>

2017, Time-resolved Photoelectron Spectroscopy from tabletop UV and HHG laser sources, Synchrotrons and FELs: experiments and challenges (TPES).

Co-Organizer, Trieste, Italy

<https://www.elettra.eu/events/2017/TPES/>

2019, NGSCES 2019, New Generation in Strongly Correlated Electrons Systems 2019

Co-Organizer, Silvi Marina (Teramo), Italy.

<https://sites.google.com/view/ngscs2019>

2024, Multimessenger Approach to out-of-equilibrium DYNAMICS in Complex Systems (MADYCS).

Co-Organizer, Trieste, Italy

<https://indico.elettra.eu/event/43/>

2024, QUantum matERials for Sustainable Technologies (QUEST).

Co-Organizer, Trieste, Italy

<https://indico.elettra.eu/event/46/>

LANGUAGE SKILLS

Italian mother tongue, English fluent.

COMPUTER AND ELECTRONIC COMPETENCES

Excellent knowledge of Computer Hardware and Software (PC-Mac-Linux). Of peculiar relevance for my research activity in Physics I can mention: Wavemetrics Igor Pro, Mathworks Matlab, National Instruments

Labview, LaTeX, Gimp, Office, OpenOffice. Excellent knowledge of the fundamentals of Electronics and Data Acquisition. In particular, I designed, developed, build and tested several setups to perform time-resolved optical measurement, from both the optical, electronic and data acquisition points of view. I am able to program National Instruments and Spectrum acquisition devices.

TEACHING ACTIVITIES

Teaching of the course “*Photonics*”, Università degli Studi di Trieste, Physics Department (Trieste), Fall Semester (Master Program), since Academic Year 2018-2019. The course “*Photonics*” aims at providing the fundamentals of Laser Physics, including Non-Linear Optics and Ultrashort Pulse techniques.

Tutor for the experimental activities of Bachelor, Master and PhD students at the T-ReX Laboratory, FERMI@Elettra, Elettra – Sincrotrone Trieste.

Relator and Correlator of several Bachelor Students, Master Students and PhD Students at the Physics Department – University of Trieste:

35 - Erik Moro, Bachelor Thesis, March 2026

Studio delle proprietà ottiche fuori equilibrio di un film di WSe_2

34 - Cataldo Sestito, Bachelor Thesis, July 2025

Studio delle dinamiche ottiche ultraveloci del composto $NbTe_2$

33 – Marco Morvillo, Master Thesis, March 2025

Electronic states out-of-equilibrium in VSe_2 observed by TR-ARPES

32 – Francesco Cautero, Master Thesis, March 2025

Ultrafast rotation of optical polarization in bulk transition-metal dichalcogenides

31 – Michele Senatore, Bachelor Thesis, March 2025

Dinamiche ultraveloci del composto a densità di carica modulata $LaTe_3$ in presenza di sforzo uniassiale

30 – Manuel Tuniz, PhD Thesis, January 2025

Ultrafast dynamics of strongly-coupled charge-density-wave systems

29 – Andrea De Cristofaro, Bachelor Thesis, December 2024

Dinamiche ultraveloci del composto a densità di carica modulata $NbSe_2$

28 – Luca Ciuffarin, Bachelor Thesis, December 2024

Studio di un film sottile di un diradicaloide attraverso spettroscopia di assorbimento transiente ultraveloce

27 – Sofia D'Ambrosio, Bachelor Thesis, July 2024

Dinamiche ultraveloci nel materiale a densità di carica modulata $LaTe_3$ studiate mediante spettroscopia ottica risolta in tempo

26 – Maria Chiara Corsi, Master Thesis, July 2024

Ultrafast non-equilibrium dynamics in the charge-density-wave compound VTe_2 triggered by resonant photoexcitation

25 – Matteo Cossetto, Master Thesis, October 2023

Light-Induced Phase Transitions in VTe_2

24 – Denny Puntel, PhD Thesis, September 2023

Ultrafast Photoelectron Spectroscopy of Quantum Materials with a Novel 10.8 eV Photon Source

23 – Francesco Sammartino, Master Thesis, September 2023

Study of coherent phonons and second harmonic generation in a tellurium crystal

22 - Manuel Tuniz, Master Thesis, October 2021

Non-equilibrium electron dynamics of the bulk VSe_2 charge-density-wave system studied by Time & Angle Resolved Photoelectron Spectroscopy

21 - Michele Perlangeli, Master Thesis, October 2021

Dinamiche eccitoniche ultraveloci in dicalcogenuri dei metalli di transizione rivelate attraverso spettroscopia ottica risolta in tempo e fotoluminescenza risolta in tempo da quantum wells di GaAs

20 - Alessandro Giammarino, Master Thesis, September 2021

Anisotropy of the non-equilibrium dynamics of the iron-based superconductors $Ba(Fe_{1-x}Co_x)_2As_2$ revealed by broadband polarization-resolved optical spectroscopy

19 - Francesco Proietto, Bachelor Thesis, December 2021

Realizzazione e caratterizzazione di un apparato sperimentale per misure di foto-luminescenza risolta in tempo

18 - Christian Kodarin, Bachelor Thesis, September 2021

Messa a punto di un apparato sperimentale per spettroscopia ottica risolta in tempo con pompa accordabile nel visibile
17 - Yan Yan Grisan, Bachelor Thesis, September 2021
Dinamiche ultraveloci del composto BaFe_2As_2 rivelate attraverso spettroscopia ottica risolta in tempo e polarizzazione
16 - Michela De Col, Bachelor Thesis, September 2021
Modulazioni coerenti nella risposta ultraveloce a bassa temperatura del sistema a densità di carica modulata $(\text{TaSe}_4)_2\text{I}$
15 - Giovanni Veronese, Bachelor Thesis, September 2021
Realizzazione e caratterizzazione di un apparato sperimentale per la misura di fotoconducibilità risolta in tempo
14 - Davide Soranzio, PhD Thesis, March 2021
Ultrafast lattice and carrier dynamics in Weyl and Kane quantum materials
13 - Luca Polano, Bachelor Thesis, September 2020
Anisotropia della risposta ottica fuori equilibrio nella fase nematica del superconduttore FeSe
12 - Giuseppe Crupi, Bachelor Thesis, September 2020
Dinamiche fuori equilibrio del sistema con densità di carica modulata $(\text{TaSe}_4)_2\text{I}$
11 - Fabrizio Forte, Bachelor Thesis, September 2020
Misura simultanea di riflettività e trasmissione risolte in tempo di un film di WSe_2
10 - Nicole Radegonda, Bachelor Thesis, September 2020
Rettificazione ottica di impulsi di luce laser a 1030 nm per la generazione di radiazione THz
09 - Gabriel Malandra, Bachelor Thesis, Luglio 2020
Simmetria della struttura elettronica transiente dell'isolante topologico Bi_2Se_3 nell'intorno del livello di Fermi
08 - Denny Puntel, Master Thesis, October 2019
Uncovering the Full Non-Equilibrium Dynamics of Superconducting Cuprates by Time-Resolved ARPES
07 - Manuel Tuniz, Bachelor Thesis, September 2019
Dinamiche ultraveloci del composto superconduttore $\text{FeSe}_{1-x}\text{Te}_x$ rivelate attraverso spettroscopia ottica risolta in polarizzazione e tempo
06 - Michele Perlangeli, Bachelor Thesis, December 2018
Anisotropie di polarizzazione osservate simultaneamente nella risposta ottica fuori equilibrio di monocristalli di 2H-MoTe_2 e $1\text{T}'\text{-MoTe}_2$
05 - Damir Kopic, Master Thesis, September 2017
Non-equilibrium electronic dynamics in cuprate superconductors by VUV and HHG photoemission spectroscopy
04 - Davide Soranzio, Master Thesis, September 2017
Time-resolved optical and photoelectronic studies of the semimetallic transition metal dichalcogenide WTe_2
03 - Denny Puntel, Bachelor Thesis, September 2017
Proprietà ottiche fuori equilibrio del materiale multiferroico CoCr_2O_4
02 - Enrico D'Incecco, Bachelor Thesis, November 2015
Studio delle Proprietà Ottiche dei Sistemi Superconduttori $\text{Sr}_{1-x}\text{La}_x\text{FBiS}_2$ Mediante Spettroscopia Infrarossa
01 - Damir Kopic, Bachelor Thesis, September 2015
Dinamiche Elettroniche Fuori Equilibrio in un Superconduttore a Base di Ferro

AWARDS

2022, I-LAMP (Interdisciplinary Laboratories for Advanced Materials Physics) academic early career award:
 "Dr. Federico Cilento, for his research on out-of-equilibrium states in low-dimensional materials."
 Università Cattolica del Sacro Cuore, Dipartimento di Matematica e Fisica, Brescia.

SCHOOLS

2018, School on Synchrotron and Free-Electron-Laser Methods for Multidisciplinary Applications
Time-resolved experiments with HHG tabletop lasers compared to FEL and SR measurements
 ICTP, Trieste, 7-18 May 2018. <https://indico.ictp.it/event/8308/overview>

ABILITATION

ASN 2016/2018 - Attestazione di avvenuto conseguimento dell'Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel Settore Concorsuale 02/B1 - FISICA SPERIMENTALE DELLA MATERIA. La validità dell'Abilitazione è di 11 anni, dal 26/07/2018 fino al 26/07/2029.

PUBLICATIONS

To June 06, 2026: 71 publications; **2379 citations**, ***h Index 26*** (Scopus); **3374 citations**, ***h Index 31*** (Scholar)

- D. Puntel, F. Sammartino, W. Bronsch, S. Peli, **F. Cilento**, H. Ebert, J. Braun, and F. Parmigiani
Physics of the spin-orbit coupling at the surface of the model topological insulators Bi_2Se_3 and Bi_2Te_3 : Theory and experiments
Phys. Rev. B **113**, 205308 (2026) and <https://arxiv.org/abs/2403.01029>
- M. Perlangeli, G. M. Pierantozzi, A. Fondacaro, P. Sander, E. Dobovcnik, F. Parmigiani, G. Rossi, G. Panaccione, **F. Cilento**, and R. Cucini
Integrated setup for time and spatially resolved micro-photoluminescence
Rev. Sci. Instrum. **97**, 023004 (2026)
- Milloch, F. Proietto, N. Agarwal, L. Foglia, R. Mincigrucci, G. Gu, C. Giannetti, **F. Cilento**, F. Bencivenga, and F. Parmigiani
Energy density driven ultrafast electronic excitations in a cuprate superconductor
Phys. Rev. B **113**, 024507 (2026) and <https://arxiv.org/abs/2510.00653>
- O. Abdul-Aziz, M. Tuniz, W. Bronsch, F. Parmigiani, **F. Cilento**, D. Wolverson, C. J. Sayers, G. Cerullo, C. Dallera, E. Carpena, P. H. M. van Loosdrecht, and H. Hedayat
Photoinduced electronic band dynamics and defect-mediated surface potential evolution in $PdSe_2$
npj 2D Mater Appl **9**, 110 (2025) and <https://arxiv.org/abs/2510.26011>
- M. Tuniz, D. Puntel, W. Bronsch, F. Sammartino, G. M. Pierantozzi, R. Cucini, F. Parmigiani, and **F. Cilento**
Quenching the electronic order in a strongly-coupled charge-density-wave system by enhanced lattice fluctuations
Commun. Mater. **6**, 243 (2025) and <https://arxiv.org/abs/2503.04658>
- E. Cappelluti, H. Rostami, and **F. Cilento**
Hidden order revealed by light-driven Kerr rotation in Centrosymmetric bulk WSe_2
npj 2D Mater Appl **9**, 89 (2025) and <https://arxiv.org/abs/2411.06561>
- M. Dell'Angela, R. Costantini, A. Morgante, A. Singh, I. R. Fisher, G. Panaccione, and **F. Cilento**
Time resolved core level spectroscopy reveals light-induced structural changes in $GdTe_3$
Physica B: Condens. Matter **717**, 417762 (2025)
- V. Gosetti, J. Cervantes-Villanueva, S. Mor, D. Sangalli, A. García-Cristóbal, A. Molina-Sánchez, V. F. Agekyan, M. Tuniz, D. Puntel, W. Bronsch, **F. Cilento**, and S. Pagliara
Unveiling the exciton formation in time, energy and momentum domain in layered van der Waals semiconductors
Prog. Surf. Sci. **100**, 100777 (2025) and <https://arxiv.org/abs/2412.02507>
- W. Bronsch, M. Tuniz, D. Puntel, F. Sammartino, A. Giammarino, M. Morvillo, F. Parmigiani, C.-N. Kuo, C. S. Lue, Y.-h. Chan, and **F. Cilento**
Ultrafast band structure dynamics in bulk 1T- VSe_2
Phys. Rev. B **111**, 125102 (2025)

- F. Novelli, A. Buchmann, I. Yousaf, L.-L. Stiewe, W. Bronsch, **F. Cilento**, C. Hoberg, and M. Havenith
High-Mobility Electrons in Aqueous Iodide Solutions
ACS Omega **10**, 5097 (2025)
- M. Tuniz, A. Consiglio, G. Pokharel, F. Parmigiani, T. Neupert, R. Thomale, S. K. Chaluvadi, P. Orgiani, G. Sangiovanni, S. D. Wilson, I. Vobornik, F. Salvador, F. Cilento, D. Di Sante, and F. Mazzola
Strain-Induced Enhancement of the Charge Density Wave in the Kagome Metal ScV_6Sn_6
Phys. Rev. Lett. **134**, 066501 (2025)
- 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, and **F. Cilento**
Impact of MoS_2 Monolayers on the Thermoelastic Response of Silicon Heterostructures
ACS Appl. Nano Mater. **7**, 15317 (2024)
- H. Rostami, **F. Cilento**, and E. Cappelluti
Pump-Driven Opto-Magnetic Properties in Semiconducting Transition-Metal Dichalcogenides: An Analytical Model
Nanomaterials **14**, 707 (2024)
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