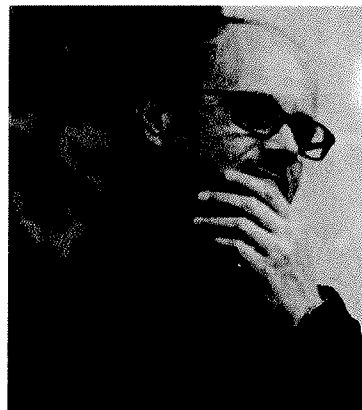


## INFORMAZIONI PERSONALI

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## INDIRIZZO E CONTATTI LAVORATIVI

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## PUBLIC RESEARCH PROFILES

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## SINTESI PUBBLICAZIONI

Author of **326** publications (Source ISI WoS) **227** peer reviewed (JCR) articles.

## INDICE DELLE CITAZIONI

ISI WOS CITATION INDEX ISI: H-index=**38**; Citations=6570  
GSCHOLAR CITATION INDEX: H-Index: **44**; Citations=9895

## ESPERIENZA LAVORATIVA

- Research Director (Dirigente di Ricerca) at Istituto di Ottica (INO) - CNR, Pisa (current)
- Head of the Pisa Unit of Istituto Nazionale di Ottica (<http://www.pi.ino.cnr.it/pisa/>) (current)
- Scientific Director of the Intense Laser Irradiation Laboratory (current)
- Business or sector: Public Research

## FORMAZIONE

**PhD:** (1990-2004) 1994: Ph.D. in Plasma Physics and D.I.C (Imperial College of Science technology and Medicine, University of London;

**LAUREA (first degree):** (1983-1989) Laurea in Fisica, Università degli studi di Pisa, Laurea in Fisica (Università di Pisa);

**OTHER POSITIONS, SCHOLARSHIPS AND AWARDS:** EU Marie Curie Fellowship at Imperial College, London, UK, 1995 • Scholarship of the Italian Space Agency at IFAM-CNR, Pisa, 1994 • Scholarship of the National Research Council at l'Imperial College di London, UK, 1993-94 • Research Associate at Imperial College, London, UK, 1993 • Scholarship of the National Research Council at IFAM-CNR, Pisa, 1991-92 • Scholarship of the National Research Council at Imperial College di London, UK, 1991.

**MAIN RESEARCH FIELDS:** High Power Laser Interaction with Matter • X-Ray Emission from Laser Produced Plasmas • X-ray generation and characterization and applications • High Energy Astrophysics • Ultra Short, Ultraintense Laser Plasma Interactions • Particle acceleration in plasmas • Radiobiology with ultra-high dose rate and advanced radiotherapy applications • Atomic physics of highly ionized species • X- ray and  $\gamma$ -ray optics • Laser-plasma interaction and parametric instabilities • Inertial confinement fusion • Inertial Fusion Energy

## LINGUE

Mother tongue(s) **ITALIAN**  
Other language(s) **ENGLISH**

## A SELECTION OF PAST AND PRESENT PROJECT RESPONSABILITIES AND ROLES

- > Extreme Light Infrastructure – ELI-ERIC – Member of the Scientific and Technical Advisory Committee (ISTAC) (2024 – present)
- > MUR - Tuscany Heath Ecosystem (THE) PNRR project funded with 110 M€, CNR Scientist in charge (2022-present)
- > MUR - SPOKE 1 "Radioterapie e Diagnostiche Avanzate in Oncologia" of THE, Coordinator (2022-now)
- > MUR - "Integrated Infrastructure in Photonics and Quantum Science (IPHOQS)" PNRR project, Coordinator of WP on "Extreme Photonics" (2022 – Present)
- > EU project Laser grade Ceramics (LACE) funded by EDF for 4 M€ - Coordinator
- > EU project Plasma Accelerator systems for Compact Research Infrastructures (PACRI) funded Horizon Europe for 10 M€ - Member of the Core group (Laser)
- > Collegio di Dottorato del Dipartimento di Fisica dell'Università di Pisa, Member (2023-now)
- > Compact European Plasma Accelerator (EuPRAXIA) – Preparatory Phase, WP Leader of Laser Technology and Liaison with Industry (2022-now);
- > ELI - Nuclear Physics – Member of the Access Panel (2022-now)
- > HiPER+ European Collaboration on Inertial Fusion Energy – Member of the Core group – (2021-now)
- > EU H2020 - Innovation Fostering in Accelerator Science and Technology (I.FAST), Task Leader on Laser Driver Development (2020-now)
- > EU H2020 - Compact European Plasma Accelerator (EuPRAXIA) – Design Study, WP Leader of Laser Driver Design (2017-2021)
- > *Beam Plasma and Inertial Fusion Section (BPIF)*, Plasma Physics Division, European Physical Society (EPS) - Chair (former) and ex-officio member
- > Extreme Light Infrastructure (ELI) – Delivery Consortium (ELI-DC) Administrative and Financial Committee, Italian Representative (2018-2022).
- > EU FP7 - High Power laser Energy Research Facility (HiPER), Research Infrastructures, Coordinator of Facility Design WP and Member of the Project Management Committee (2007-2011)
- > FLAME Laboratory, Laboratori Nazionali di Frascati, INFN, Frascati, Roma, Italy, Head of Commissioning (2008-2011)
- > CNR/MIUR-FISR Legge 449/97 *"Impianti innovativi multiscopo per la produzione di radiazione X e UV, coerente ed incoerente ad alta intensità, per applicazioni avanzate"*, Coordinator (2003-2007)
- > INFN Commissione Nazionale V, Progetto FAST - *Femtosecond timing and sync*, Local Coordinator - Sez. Pisa;
- > EFS-COST Action MP0601 "Short Wavelength Laboratory Sources", National representative (2007 to 2010)
- > MIUR-FISR- national project on *Compact Ultrafast X-ray Sources*, National Coordinator, 2003-2007,
- > EU FP5 European training network XPOSE, *X-ray probing of the structural evolution of matter*, Head of IPCF-CNR node, (2000-2004);
- > ASI Italian Space Agency, Laue-diffraction optics for gamma-ray astronomy, Scientist in charge of Pisa research unit, (2000-2001);
- > CNR institutional projects on *Physics of dense plasmas and X-ray sources*, Scientist in charge, (1997-2000);
- > CLAIRE International Project, A balloon borne Laue-diffraction Gamma-ray telescope, (1997-2000)
- > ASI project, The LAPEX Experiment, Scientist in charge, (1996-1997).
- > EC European training network GAUS-XRP II, Generation and application of ultrashort, laser-produced X- ray pulses, (1996-2000);
- > EC European training network SILASI, Superintense Laser Solid Interactions, (1996-2000);
- > EC European training network GAUS-XRP I, Generation and application of ultrashort, laser-produced X- ray pulses, (1993-1995);
- > CNR institutional projects on *High power density laser-matter interactions*, (1989-1996).
- > Member of the Project Management Committee of the High Power Laser Energy Research Infrastructure (HiPER) (2008-2010);
- > Member of the Commission on Plasma Physics of the International Union of Pure and Applied Physics (IUPAP) (2008-2011)
- > Elected Member of BPIF Board - Plasma Physics Division of the European Physical Society (EPS)

(2008-2011)

- > Vice-chair of the Management Committee of the COST Action MP0601 "SHORT WAVELENGTH LABORATORY SOURCES" (2007 to 2010).
- > Member of the Facility Access Panel of the Central Laser Facility of the Science and Technology Facilities Council, UK (2009 - 2011).
- > Member of the International Scientific Committee of the Prague Asterix Laser (PALS) of the Czech Academy of Science, Prague (2007 - 2010).
- > Member of the International Scientific Committee of the PETawatt Aquitaine Laser (PETAL) of CEA/CSTA, Bordeaux (2007 - 2010).
- > Member of the Core to Core Program on Ultrafast Intense Laser Science of the (JSPS) Japanese Society of the Promotion of Science (2006 - 2009).
- > *Outstanding Referee* of the American Physical Society (APS)

## CONFERENZE E WORKSHOP

More than 60 oral and invited presentations at international conferences and workshops, including EPS, IPAC, ECLIM, SPIE, EAAC, SIF and many other  
Co-organizer and chair of more than 20 international events including conferences, workshops and schools.

## RUOLI DI TUTORAGGIO

Supervisor and tutor of more than 20 among PhDs and first degree in Physics.

## RUOLI EDITORIALI

Reviewer, co-editor and topical editor for the main scientific journals including APS, Nature, Springer, ScienceDirect, IOP, CUP and many others

## PUBBLICAZIONI

Author of 326 publications (Source ISI Web of Science) including more than 227 articles on **refereed** (JCR) journals with 6570 citations (as of Feb 2025). H-Index: 44 (G. Scholar) H-Index: 38 (ISI WOS)

## PUBBLICAZIONI SELEZIONATE

- CMV Panaino, S Piccinini, MG Andreassi, G Bandini, A Borghini, M Borgia, A Di Naro, LU Labate, E Maggiulli, MGA Portaluri, **LA Gizzi**, *Very High-Energy Electron Therapy Toward Clinical Implementation*, *Cancers* **17** (2), 181 (2025). <https://doi.org/10.3390/cancers17020181>
- M Salvadori, F Brandi, L Labate, F Baffigi, L Fulgentini, P Galizia, P Koester, D Palla, D Sciti, **L A Gizzi**, *Quantitative elemental analysis [I] laser-driven particle-induced x-ray emission with a compact proton source*, *PRA*, **21** (6), 064020 (2024), <https://doi.org/10.1103/PhysRevApplied.21.064020>
- A. Borghini, L. Labate, S. Piccinini, C. M. V. Panaino, M.G. Andreassi, **L.A. Gizzi**, *FLASH Radiotherapy: Expectations, Challenges, and Current Knowledge*. *Int. J. Mol. Sci.* **25**, 2546 (2024); <https://doi.org/10.3390/ijms25052546>
- C. Danson and **L.A.Gizzi**, *Inertial confinement fusion ignition achieved at the National Ignition Facility – an editorial*, *HPLSE*, **11**, e40, (2023); <http://doi.org/10.1017/hpl.2023.38>
- A. Borghini, C. Vecoli, L. Labate, D. Panetta, MG Andreassi, LA Gizzi, *FLASH ultra-high dose rates in radiotherapy: preclinical and radiobiological evidence*, *Int J Radiat Biol.* **98**, 127-135 (2022). <https://doi.org/10.1080/09553002.2022.2009143>
- L. Labate, D. Palla, D. Panetta, F. Avella, F. Baffigi, F. Brandi, F. Di Martino, L. Fulgentini, A. Giulietti, P. Köster, D. Terzani, P. Tomassini, C. Traino, **L. A.Gizzi**, *Toward an effective use of laser-driven very high energy electrons for radiotherapy: Feasibility assessment of multi-field and intensity modulation irradiation schemes*, *Scientific Reports* **10**, 17307 (2020), <https://doi.org/10.1038/s41598-020-74256-w>
- **L. A. Gizzi**, G. Cristoforetti, F. Baffigi, F. Brandi, G. D'Arrigo, A. Fazzi, L. Fulgentini, D. Giove, P. Koester, L. Labate, G. Maero, D. Palla, M. Romé, M. Russo, D. Terzani, and P. Tomassini, *Intense proton acceleration in ultrarelativistic interaction with nanochannels*, *Phys. Rev. Research* **2**, 033451 (2020).
- P. Tomassini, D. Terzani, F. Baffigi, F. Brandi, L. Fulgentini, P. Koester, L. Labate, D. Palla and **L. A. Gizzi**, *High- quality 5 GeV electron bunches with resonant multi-pulse ionization injection*, *Plasma Physics and Contr. Fusion*, **62**, 014010 (2020).
- **L.A. Gizzi**, L. Labate, F. Baffigi, F. Brandi, G.C. Bussolino, L. Fulgentini, P. Koester, D. Palla, F.

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- P. Ferrara, M. Ciofini, L. Esposito, J. Hostaša, L. Labate, A. Lapucci, A. Pirri, G. Toci, M. Vannini, and **L. A. Gizzi**, *3-D numerical simulation of Yb:YAG active slabs with longitudinal doping gradient for thermal load effects assessment*, Optics Express **22**, 5375–5386 (2014).
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  - **L. A. Gizzi**, S. Betti, E. Förster, D. Giulietti, S. Höfer, P. Köster, L. Labate, R. Löttsch, A. P. L. Robinson, and I. Uschmann, *Role of resistivity gradient in laser-driven ion acceleration*, Phys. Review ST Acc. Beams, **14**, 011301 (2011).
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  - **L.A. Gizzi**, A. Bacci, S. Betti, C.A. Cecchetti, M. Ferrario, A. Gamucci, A. Giulietti, D. Giulietti, P. Koester, L. Labate, T. Levato, V. Petrillo, L. Serafini, P. Tomassini, C. Vaccarezza, *An integrated approach to ultraintense laser sciences: the PLASMON-X project*, Europ. Phys. Journal - Special Topics, **175**, 3–10 (2009).
  - **L. A. Gizzi**, S. Betti, M. Galimberti, A. Giulietti, D. Giulietti, L. Labate, T. Levato, P. Tomassini, P. Monot, T. Ceccotti, P. De Oliveira, and Ph. Martin, *Tracking propagation of ultrashort intense laser pulses in gases via probing of ionization*, Phys. Rev. E **79**, 056405 (2009).
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  - L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, P. Tomassini, **L.A. Gizzi**, *Study of forward accelerated fast electrons in ultrashort Ti Kalpha sources*, Appl. Phys. B **86**, 229-233 (2007).
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- Galimberti, **L.A. Gizzi**, *Design of a high update-rate star sensor for arcsec-level attitude determination from balloon-borne X/gamma astronomy platforms*, Appl. Phys. B 86, 229-233 (2007) .
- **L.A. Gizzi**, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, P. Tomassini, Ph. Martin, T. Ceccotti, P. D'Oliveira, P. Monot, *Femtosecond interferometry of propagation of a laminar ionization front in a gas*, Phys. Rev. E , 144609PRE, (2006).
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  - L. Labate, C.A. Cecchetti, M. Galimberti, A. Giulietti, D. Giulietti, **L.A. Gizzi**, *Detailed characterization of the early X-ray emission of a plasma produced by point-like laser irradiation of solid Al targets*, Phys. Plasmas **12**, 083101 (2005)
  - **L.A. Gizzi**, C.A. Cecchetti, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, S. Laville, P. Tomassini, *Soft laser-plasma X-ray sources for differential absorption imaging of tracing elements in thin samples*, Laser Part. Beams **22**, 367 (2004).
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  - D. Giulietti, M. Galimberti, A. Giulietti, **L. A. Gizzi**, F. Balcou, A. Rousse, J. Ph. Rousseau, *High-energy electron beam production by femtosecond laser interactions with exploding-foil plasmas*, Phys. Rev. E **64**, 015402 (R) (2001).
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  - **L.A. Gizzi**, D. Giulietti, A. Giulietti, P. Audebert, S. Bastiani, J.P. Geindre, A. Mysyrowicz, *Simultaneous measurements of hard X-rays and 2nd harmonic emission in fs laser-target interactions*, Phys. Rev. Lett. **76**, 2278 (1996).
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  - **L.A. Gizzi**, A.J. MacKinnon, D. Riley, S.M. Viana, O. Willi, *Measurements of thermal transport in plasmas produced by picosecond laser pulses*, Laser Part. Beams, **13**, 511 (1995).
  - **L.A. Gizzi**, D. Giulietti, A. Giulietti, T. Afshar-Rad, V. Biancalana, P. Chessa, E. Schifano, S.M. Viana, O. Willi, *Characterisation of Laser Plasmas for Interaction Studies*, Phys. Rev. E, **49**, 5628 (1994).
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- T.Afshar-Rad, **L.A.Gizzi**, M.Desselberger, F.Khattak, O.Willi, A.Giulietti, *Evidence for Whole-Beam Self- Focusing of Induced Spatially Incoherent Laser Light in Large Underdense Plasmas*, Phys Rev.Lett. **68**, 942 (1992).

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Pisa, 8 agosto 2025

