CURRICULUM VITAE SINTETICO DI LEONIDA A. GIZZI

INDIRIZZO e CONTATTI
CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO NAZIONALE DI OTTICA - INO-CNR - AREA DELLA RICERCA
Via G. Moruzzi, 1 - 56124, Pisa, ITALY
E-Mail la.gizzi@ino.it
http://ilil.ino.it/leo/index.html
TEL. +39 050 315 2257
FAX. +39 050 315 2230

POSIZIONE ATTUALE
Primo Ricercatore presso l'Istituto Nazionale di Ottica (INO) – del CNR, Pisa
Ricercatore associato INFN - Sezione di Pisa
Responsabile del Laboratorio di Irraggiamento Laser Intensi - ILIL

Laureato in Fisica presso l'Università di Pisa nel 1989, ottiene il Ph.D. in Fisica presso l'Imperial College of Science, Technology and Medicine (Londra, GB) nel 1994. È fisico sperimentale con competenze nel settore dei laser di alta potenza, dell'interazione laser-materia ad altissime intensità e della diagnostica di plasmi, con riferimento ai plasmi per l'accelerazione di particelle, per le sorgenti di raggi X e γ, per la fusione nucleare e le applicazioni alla medicina.

Su queste tematiche il sottoscritto ha avuto responsabilità di coordinamento e ruoli di principal investigator in oltre 20 tra progetti Europei e Nazionali dedicati alla fisica dell'interazione laser-materia ad altissime intensità e, a partire dal 2003, allo sviluppo dell'accelerazione laser-plasma di particelle. Grazie ai risultati ottenuti con questi progetti, il laboratorio ILIL di Pisa (diretto dal sottoscritto) oggi è oggi tra i principali laboratori europei per la fisica con i laser ultraintensi e dell'accelerazione laser-plasma ed è nodo del Network Europeo sugli Acceleratori Innovativi (Euronnac) e partner del Progetto di Infrastruttura Europea (H2020) di Accelerazione a Plasma (EuPRAXIA).

Leonida A. Gizzi è autore di oltre 250 pubblicazioni censite dai principali database di pubblicazioni (ISI WOS, SCOPUS), comprendenti oltre 170 pubblicazioni su riviste con referee internazionale. Le sue pubblicazioni hanno raccolto circa 4500 citazioni bibliografiche con H-index google scholar pari a 34 e H-index ISI WOS pari a 28. È stato relatore di oltre 50 presentazioni orali e su invito a congressi internazionali. È stato membro di Advisory e Programme committee di numerose conferenze internazionali e co-editor di riviste internazionali. È stato chair della Sezione "Beam Plasma and Inertial Fusion" dell'European Physical Society. È referee delle principali riviste internazionali e dal 2008 è stato riconosciuto "Outstanding Referee" dall'American Physical Society.

Pisa, 18/04/2017

Firma

Curriculum vitae et studiorum di Paolo Tomassini

Titoli accademici:

Laurea in Fisica, Universita' di Pisa (1993)
Perfezionamento in "Fisica", Universita' di Pisa (1994)
Dottorato di Ricerca in Fisica, Universita' di Genova (1997)

Percorso accademico:

1) Corso di *Laurea in Fisica* all'Università di Pisa, con piano di studi ad indirizzo generale.

Durante il lavoro di tesi di tipo teorico mi sono occupato di Gravità Quantistica, studiandola dal punto di vista delle teorie di *gauge*. Ho ottenuto il diploma di laurea il 17 Novembre 1993, discutendo la tesi "*Gravita` Quantistica come teoria di gauge*".

2) Corso di "*Perfezionamento in Fisica*" dell'Universita' di Pisa (a.a 1993-1994).

3) In Novembre 1994 ho iniziato il corso di studi del *Dottorato di Ricerca in Fisica* presso l'Università di Genova. In data 8 Maggio '98 ho ottenuto il titolo di Dottore di Ricerca in Fisica discutendo in sede nazionale la tesi "*Analisi della turbolenza sviluppata mediante il Gruppo di Rinormalizzazione* " presso l'Universita` di Roma "La Sapienza".

4) Corso di "*Fluidodinamica computazionale ed equazioni alle derivate parziali*" dell'Universita' di Pisa (a.a 1995-1996).

Scuole e research courses

1. International School of Physics "E. Fermi", course CXXXIV, "The physics of complex systems", Varenna, 9-19Luglio 1996.
2. IV Seminario Nazionale di fisica teorica, Universita'degli studi di Parma, 2-12 Settembre 1997
3. International School in Applied Mathematics "The mathematical approach to turbulence: numerical an analytical techniques", 1-12 Giugno 1998

Ho inoltre partecipato a scuole post laurea e *research courses (elenco).*

Attivita' didattica universitaria:

1. Collaboratore didattico per il corso di Fisica Generale, c.d.l. Ingegneria dell'informazione, Universita' degli Studi di Genova, a.a 1996-1997 (40h)
2. Docente del Precorso di FisicaI, c.d.l. Ingegneria Aerospaziale, Universita' degli Studi di Pisa, a.a 1999-2000 (5h)
3. Collaboratore didattico per il corso di Fisica Generale, c.d.l. Ingegneria dell'informazione, Universita' degli Studi di Pisa, a.a 1999-2000 (40h)
4. Docente in sostituzione del Prof. Giulietti per I corsi di FisicaII (c.d.l in Chimica, 6h) e Ottica Quantistica (c.d.l. in Fisica, 6h)

Principale attivita' di ricerca svolta:

(nota: le referenze tra parentesi quadre si riferiscono alla numerazione delle pubblicazioni allegate alla domanda)

Durante la tesi di laurea ho studiato alcuni metodi di costruzione di una teoria della Gravita' Quantistica in dimensione ridotta (due dimensioni spaziali ed una temporale), ottenendo una descrizione esatta della funzione di partizione delle geometrie con alcune topologie fissate [1].

Durante il dottorato di ricerca ho svolto un'attivita' prettamente teorica, studiando il fenomeno della turbolenza nei fluidi dal punto di vista delle teorie di campo. Risultato dei tre anni di ricerca e` stato lo sviluppo di una variante al *Gruppo di Rinormalizzazione Esatto* facilmente implementabile in turbolenza o in una teoria di campo in cui le eccitazioni dei campi si propagano per effetti non lineari dalle grandi alle piccole scale [2] .

Dopo il dottorato mi sono associato al gruppo P3C (Pisa Parallel Processing Center), spin-off I.N.F.N, per il quale ho collaborato a progetti di ricerca e sviluppo all'interno del progetto M.U.R.S.T. CardioII e privati (Ferrari auto).

Ad Ottobre 2000 ho vinto un concorso per assegno di ricerca CNR, associandomi al gruppo ILIL (Intense Laser Irradiation Laboratory) dell'Istituto IPCF (ex IFAM) di Pisa, attivo nel campo dell'interazione laser-plasma, accelerazione di particelle nei plasmi e produzione di radiazione X da plasmi laser.

L'attivita' di ricerca e' stata inizialmente focalizzata sullo studio di nuovi metodi numerici per l'analisi di interferogrammi, con i quali e' possibile ricostruire la mappa di densita' di un plasma. Utilizzando le nuove tecniche tempo-frequenza in base Wavelet, e' stato possibile implementare nuovi codici che migliorano sensibilmente la sensibilita' e stabilita' dell'analisi [3,4,5,6,8,9].

Dal Gennaio 2002, come responsabile dell'attivita' teorico/numerica del laboratorio nel campo dell'accelerazione di particelle da interazione laser-plasma, ho studiato il processo di generazione di *bunch* elettroni all'interno di un plasma con densita' non omogenea nei quali si ha una rottura parziale delle onde di plasma eccitate da un impulso laser ultracorto che lo attraversa. Gli elettroni veloci generati dalla rottura parziale dell'onda di plasma possono costituire un valido *bunch* di elettroni da accelerare nell'onda di plasma: con l'ausilio di codici Particle In Cell 2D parallelizzati e' stato possibile dimostrare la possibilita' di produrre pacchetti di elettroni *quasi monocromatici con emittanze record* [10,14].

La caratterizzazione di pacchetti di elettroni prodotti da interazione laser-plasma e', attualmente, un problema aperto a causa dell'estrema brevita' dei bunches (femtosecondi) e ridotta monocromaticita'. Nel 2003 ho proposto due metodi alternativi per la misura della distribuzione in energia o della durata di un bunch di elettroni basato sulla analisi della radiazione emessa dal bunch per Scattering Thomson lineare relativistico [12].

Lo studio della radiazione Thomson e' stato successivamente allargato includendo gli effetti non lineari, che si verificano ad intensita' elevate del campo laser. Uno studio accurato del comportamento della radiazione Thomson in regime nonlineare ha permesso di mettere in evidenza l'importanza del profilo temporale dell'impulso laser e dell'emittanza del bunch di elettroni [19].

Nel 2004 sono stato proponente di una proposta europea, successivamente approvata con il massimo punteggio, per l'utilizzo di un laboratorio laser a 10 Terawatt in Francia [18].

Nel 2004 ho curato la parte di Accelerazione Laser Wakefield e Sorgente X Thomson, entrambe con l'ausilio di codici 2D e 3D sviluppati ad hoc, della proposta "PLASMONX" recentemente approvata dall' I.N.F.N.

Dal 2004 al 2006 sono stato responsabile del gruppo "Accelerazione Laser-Plasma" della collaborazione PLASMONX, coordinando l'attivita' di studio per l'ottimizzazione e la caratterizzazione del processo di accelerazione di bunches di elettroni pre-accelerati o prelevati dal plasma stesso.

Dal 2007 al 2012 ho collaborato con l'INFN di Milano per lo sviluppo di sorgenti Compton ad alta brillanza

Dal 2013 al 2016 ho collaborato con ELI-beamline per lo sviluppo della linea di accelrazione di elettroni con LWFA

Da Novembre 2017 sono ricercatore TD presso la sede di Pisa dell'INO-CNR

Paolo Tomassini

europass

Europass Curriculum Vitae

Personal information

Surname(s) / First name(s)	**Labate / Luca Umberto**
Nationality(-ies)	Italian
Date of birth	December 30, 1971
Place of birth	Reggio Calabria, Italy
title	Dr.
Sex	Male
Addresses	**Home:** via San Michele degli Scalzi 123 - 56124 Pisa, Italy **Office:** Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (CNR), CNR Research Area, via Moruzzi 1 - 56124 Pisa, Italy
E-mail addresses	luca.labate@ino.it lucalabate@gmail.com
Phone numbers	**Mobile phone:** +39 339 2477605 **Office:** +39 050 315 2255 **Fax (office):** +39 050 315 2247

Education

2004: PhD in Physics, *University of Bologna*, Italy

PHD THESIS TITLE: *Progress in laser-plasma X-ray sources: time-resolved spectroscopic studies and applications to μ-imaging*

THESIS ADVISORS: dr. L. A. Gizzi (Consiglio Nazionale delle Ricerche, Pisa) and dr. G. Di Cocco (Istituto Nazionale di Astrofisica, Bologna)

2000: M.Sc. (Laurea Magistrale) in Physics, *University of Pisa*, Italy

M.SC. THESIS TITLE: *Spettroscopia di riga con risoluzione spaziale dell'emissione X di plasmi prodotti da laser*

THESIS ADVISOR: prof. D. Giulietti (University of Pisa, Italy).

Positions

Current

since November 2, 2011: permanent staff researcher at the Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy

Past

since February 1, 2010: researcher (term position) at the Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy

February 1, 2007 - January 31, 2010: researcher (term position) at the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy, for a scientific activity in the field of the *Development of a high power nanosecond laser system with large bandwidth and controllable temporal profile*

November 1, 2006 - January 31, 2007: post-doc research grant (art. 2222 Italian Civil Code) from the Laboratori Nazionali di Frascati, Istituto Nazionale di Fisica Nucleare (INFN), Frascati, Italy

October 1, 2006 - December 31, 2006: post-doc research grant (art. 2222 Italian Civil Code) from the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy (research activity on *Study of the X-ray emission from laser plasmas and of FEL produced X-ray radiation in the framework of the SPARX project*)

August 1, 2005 - July 31, 2006: post-doc research grant (art. 2222 Italian Civil Code) from the Laboratori Nazionali di Frascati, Istituto Nazionale di Fisica Nucleare (INFN), Frascati, Italy

February 1, 2006 - December 31, 2006: research associate at the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy

May 2005 - December 2005: research associate at the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy

April 2005: grant from the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy for the *Migration of an MPI parallel PIC code for laser-plasma simulation to a Linux cluster*

April 1, 2004 - March 31, 2005: post-doc research grant from the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy for the *Study of the X-ray emission from ultrashort and ultraintense laser plasmas*

May 1, 2003 - February 29, 2004: research grant from the Istituto per i Processi Chimico-Fisici, COnsiglio Nazionale delle Ricerche (CNR), Pisa, Italy for the *Development of X-ray sources from laser-plasmas and X- and γ-ray detectors*

2003-2010: teaching assistant for the courses of Quantum Optics and Laboratory of Quantum Optics at the Department of Physics, University of Pisa, Italy

October 1, 2002 - April 30, 2003: research fellow from the Institut für Optik und Quantenelektronik, Friedrich-Schiller-Universität, Jena, Germany

October 1, 2001 - September 30, 2002: research grant from the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche (CNR), Pisa, Italy for the *Development of X-ray sources from laser plasmas and X- and γ-ray detectors*

September 2001: grant from the Istituto per i Processi Chimico-Fisici, Consiglio Nazionale delle Ricerche, Pisa, Italy for the *Project of a monochromator for laser-plasma X-ray radiation*

2001 - 2004: PhD student, University of Bologna, Italy

Languages

Mother tongue(s) **Italian**

Self-assessment
European level(*)

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
English				
C1 Proficient user	C2 Proficient user	C1 Proficient user	C2 Proficient user	C2 Proficient user
French				
B1 Independent user	B2 Independent user	A1 Basic user	A1 Basic user	A1 Basic user

(*) *Common European Framework of Reference (CEF) level*

Main scientific interests

- Ultrashort and/or ultraintense laser-matter interaction
- Optics of short and ultrashort lasers
- Laser-driven electron acceleration and X/γ secondary sources
- Laser-driven proton acceleration
- Experimental issues involved in the design, commissioning and operational management of small and medium scale laser facilities
- Medical applications of novel concept (laser-driven) electron accelerators
- Numerical simulations of (short/ultrashort) laser pulse generation and beam transport/focusing
- Advanced optical/X-ray diagnostics of laser-plasmas
- Laser-matter interaction in Inertial Confinement Fusion relevant regimes (plasma instabilities, fast electron transport, etc.)
- Numerical simulations of laser-plasma interaction (using hydro and PIC codes) and particle transport/interaction (Monte Carlo GEANT4 code)

Computer skills

Operating systems: Linux (preferred), Windows, MacOS
Programming languages: C/C++ (excellent), LabView© (very good), Bash shell scripting (very good), Mathematica© programming (good)
Scientific libraries: CUDA (parallel programming on GPUs), GEANT4, GSL - Gnu Scientific Library, FFTW (Fast Fourier Transform)
Scientific software: LabView©, Mathematica©, Gnuplot, Paraview, MIRO (simulation of optics and laser systems), gUPPE (simulation framework for femtosecond nonlinear optics), MatLab©/Octave,
Other software: LaTeX, OpenOffice/LibreOffice, Microsoft Office
Other: Arduino programming, QT library (C++ graphics/GUI library), Boost Asio library (C++ library for network and low-level I/O programming), Apache (web server) configuration

Teaching, awards and other scientific activities

▷ H-index (according to the *SCOPUS* database as of February 2017): 18

▷ Referee for the following journals: *Applied Optics, Applied Physics B, Chinese Optics Letters, Europhysics Letters, Journal of Physics B - At. Mol. Opt. Phys., Journal of Physics D - Applied Physics, High Power Laser Science and Engineering, Laser Part. Beams, New Journal of Physics, Nucl. Instrum. Meth. Phys. Res. A, Nucl. Instrum. Meth. Phys. Res. B, Nuclear Fusion, Optics Express, Phys. Rev. E, Phys. Rev. Lett., Plasma Phys. Controlled Fusion, Rev. Sci. Instrum., Scientific Reports*

▷ Since 2011 he is in charge of the laser systems hosted at the Intense Laser Irradiation Laboratory of the National Institute of Optics of the CNR (INO-CNR) (the laboratory features, among others, a 10TW TiSa systems currently being upgraded to the 250TW level)

▷ August 2011: winner of a public call for a permanent position as researcher in the field of physics at Consiglio Nazionale delle Ricerche

▷ 2011: he received a funding of 540k€ (total project cost 747k€) from the italian Ministry of Health through the call for projects "Giovani Ricercatori" ("Young Researchers"), for a project in the field of medical applications of laser-driven electron beams

▷ since 2016 he acts as reviewer for projects funded by the italian National Institute of Nuclear Physics (INFN) (through the CSN5)

▷ Evaluator for a PhD thesis in the field of laser-driven particle acceleration, discussed in the academic year 2016-2017 at the University of Messina (Italy)

▷ Supervisor of the PhD thesis work of the student Naveen C. Pathak (PhD program in Physics at the Department of Physics of the University of Pisa, final thesis title *Laser pulse propagation in plasmas and its implication of frequency upshift and electron acceleration*, discussed on june 2011)

▷ Since 2007 he has served several times as a member of the examining board for the assignment of research grants in the field of laser-plasma interaction by the Consiglio Nazionale delle Ricerche

▷ Since 2007 he is associated ("associazione scientifica") with the Pisa Section of the italian National Institute of Nuclear Physics (INFN)

▷ He was awarded for the 2nd best presentation in the Section "Biophysics and Medical Physics" at the 100th national congress of the Italian Society of Physics (SIF), held in 2014

▷ He acted as scientific responsible of 4 post-doc research grants assigned in the years 2013-2015 for research activities in the field of laser-driven electron acceleration

▷ He acted as scientific responsible for a post-doc research grant assigned since 01/11/2012 to 31/10/2014 for a scientific activity in the field of optics of ultrashort lasers

▷ "Outstanding referee" for the review *Rev. Sci. Instrum.* in the year 2010

▷ Responsible for the operational management of the 250TW laser system and responsible for the laser beam modelling, control, diagnostics and focusing in the Target Area of the "FLAME (Frascati Laser for Acceleration and Multidisciplinary Experiments)" laboratory, during its commissioning phase at the Laboratori Nazionale di Frascati in the framework of the INFN (Istituto Nucleare di Fisica Nucleare) strategic project "PLASMONX (Plasma Acceleration and Monochromatic X-ray generation)"

▷ Research fellow at the Institüt für Optik und Quantenelektronik of the Friedrich-Schiller-Universität, Jena (Germany), from 01/12/2012 to 30/04/2013

Participation in/responsibility of scientific projects

▷ Scientific coordinator of the CNR - Pisa unit for the project "Preclinical Tool for Advanced Translational Research with Ultrashort X-ray Pulses" funded by the italian Ministry of Research through the call MIUR PRIN2015 (the project is expected to last from 2017 to 2019)

▷ Participation as "WP expert" to the WP4 ("Laser design and optimization") and participation to the WP3 ("High gradient laser plasma acceleration bunches") of the european project "EuPRAXIA", aimed at producing a CDR for a laser-driven accelerator and FEL (funded in the framework of the H2020 program)

▷ Principal Investigator of the project *Study of radiobiological and radiotherapic effects of a novel laser driven electron accelerator*, funded by the italian Ministry of Health in the call "Giovani Ricercatori 2009" (total budget k€ 747, total funding from the Ministry of Health k€ 540), project duration February 2012 - January 2016

▷ Scientific coordinator of the INFN - Pisa unit for the INFN project "SiCilia" (expected project duration 01/01/2016 - 31/12/2018)

▷ Work Package 5 ("Radiobiological Testing Facility") leader within the INFN CNS5 experiment "L3IA - Line for Laser Light Ions Acceleration", started in 2016

▷ Scientific Coordinator for the italian participation to the Joint Research Activity "European Research Objectives on Lasers for Industry, Technology and Energy (EURO-LITE)" in the framework of the EC project "LASERLAB Europe" (June 2012 - November 2015, total funding allocated for Italy k€ 40)

▷ WP2 ("Laser-plasma diagnostic") leader in the years 2014-2015 for the INFN project "PLASMAMED"

▷ Scientific coordinator of the project *AdOpRad - R&D of innovative wavefront sensors and adaptive optics for laser-driven radiological devices*, funded by the Tuscany Region (project duration 01/11/2012 - 31/10/2014)

▷ Participation to the project *BLISS - broadband laser for ICF strategic studies* from 01/02/2007 to 31/01/2011, funded by the italian Ministry of Research (FIRB RBNE03N48B)

▷ Scientific Coordinator for the italian side of the Executive Program of Cooperation in the Field of Science and Technology between Italy and Japan on the *Study of laser pulse guiding conditions for laser-plasma acceleration* (years 2008 and 2009)

Most relevant experiences abroad

◇ october 2002 to april 2003: research fellow at the Institut für Optik und Quantenelektronik, Friedrich-Schiller-Universität, Jena, Germany

◇ since 2000 he took part to more than 20 long lasting (> 2 weeks) experiments in France, Germany, UK, Czech Republic, Japan

Participation to conferences as invited speaker

- Advanced Summer School on "Laser-Driven Sources of High Energy Particles and Radiation", to be held in Capri, Italy on 9-16 July 2017. Lectures on *Ultrafast, intense laser pulse diagnostics*
- EXTATIC welcome week 2017, Trieste, Italy, 16-20 January 2017. Title of the talk: *Laser-driven electron acceleration and secondary X/γ-ray sources*
- 3rd ELIMED workshop on Medical and multidisciplinary applications of laser-driven ion beams at ELI-Beamslines, Catania, Italy, 7-10 September 2016. Title of the talk: *Line for Laser-driven Light Ions Acceleration (L3IA) at ILIL and related TNSA studies*
- International Conference on High Energy Density Sciences 2015, Yokohama, Japan, 22-24 April 2015. Title of the talk: *A small-scale laser-driven electron accelerator for radiobiology experiments at ILIL-CNR*
- FisMat2015, Palermo, Italy, September 28 - October 2, 2015. Title of the talk: *Role of laser polarization on stable injection of laser-plasma acceleration at high dose for radiobiology applications*
- SPIE Optics+Optoelectronics 2013 Conference, Prague, Czech Republic, April 15-18, 2013. Title of the talk: *Small-scale laser based electron accelerators for biology and medicine: a comparative study of the biological effectiveness*
- 17th International Conference on Atomic Processes in Plasmas, 19-22 july 2011, Belfast (UK). Title of the talk: *X-ray spectroscopy and charged particles with small-scale lasers*
- 4th International Conference on Superstrong Fields in Plasmas, Varenna, Italy, September 3-9, 2010. Title of the talk: *PLASMONX project: the FLAME laser and the test experiment at LNF-INFN*

Peer-reviewed publications

2016

- L. Labate, P. Ferrara, L. Fulgentini, L. A. Gizzi, *Effects of small misalignments on the intensity and Strehl ratio for a laser beam focused by an Off-Axis Parabola*, Appl. Opt. **55**, 6506-6515 (2016)
- M. G. Andreassi, A. Borghini, S. Pulignani, F. Baffigi, L. Fulgentini, P. Köster, M. Cresci, C. Vecoli, D. Lamia, G. Russo, D. Panetta, M. Tripodi, L. A. Gizzi, L. Labate, *Radiobiological effectiveness of ultrashort laser-driven electron bunches: micronucleus frequency, telomere shortening and cell viability*, Rad. Res. **186**, 245-253 (2016)
- L. Labate, M. G. Andreassi, F. Baffigi, R. Bizzarri, A. Borghini, G. C. Bussolino, L. Fulgentini, F. Ghetti, A. Giulietti, P. Köster, D. Lamia, T. Levato, Y. Oishi, S. Pulignani, G. Russo, A. Sgarbossa, L. A. Gizzi, *LESM: a laser-driven sub-MeV electron source delivering ultra-high dose rate on thin biological samples*, J. Phys. D - Appl. Phys. **49**, 275401 (2016)
- D. Palla, F. Baffigi, F. Brandi, L. Fulgentini, P. Köster, L. Labate, P. Londrillo, L. A. Gizzi, *Comparison of self-injection thresholds in He and N_2 and role of self-focusing in LWFA*, Nucl. Instrum. Meth. Phys. Res. A **829**, 408-412 (2016)
- C. Altana, A. Muoio, G. Lanzalone, S. Tudisco, F. Brandi, G. A. P. Cirrone, G. Cristoforetti, A. Fazzi, P. Ferrara, L. Fulgentini, D. Giove, P. Köster, L. Labate, D. Mascali, D. Palla, F. Schillaci, L. A. Gizzi, *Investigation of ion acceleration mechanism through laser-matter interaction in femtosecond domain*, Nucl. Instrum. Meth. Phys. Res. A **829**, 159-162 (2016)
- L. A. Gizzi, C. Altana, F. Brandi, P. Cirrone, G. Cristoforetti, A. Fazzi, P. Ferrara, L. Fulgentini, D. Giove, P. Köster, L. Labate, G. Lanzalone, P. Londrillo, D. Mascali, A. Muoio, D. Palla, F. Schillaci, S. Sinigardi, S. Tudisco, G. Turchetti, *Role of laser contrast and foil thickness in target normal sheath acceleration*, Nucl. Instrum. Meth. Phys. Res. A **829**, 144-148 (2016)
- S. Tudisco, C. Altana, G. Lanzalone, A. Muoio, G. A. P. Cirrone, D. Mascali, F. Schillaci, F. Brandi, G. Cristoforetti, P. Ferrara, L. Fulgentini, P. Köster, L. Labate, D. Palla, L. A. Gizzi, *Investigation on target normal sheath acceleration through measurements of ions energy distribution*, Rev. Sci. Instrum. **87**, 02A909 (2016)

2015

- N. Booth, A. P. L. Robinson, P. Hakel, R. J. Clarke, R. J. Dance, D. Doria, L. A. Gizzi, G. Gregori, P. Köster, L. Labate, T. Levato, B. Li, M. Makita, R. C. Mancini, J. Pasley, P. P. Rajeev, D. Riley, E. Wagennars, J. N. Waugh, N. C. Woolsey, *Laboratory measurements of resistivity in warm dense plasmas relevant to the microphysics of brown dwarf*, Nature Commun. **6**, 8742 (2015)
- P. Köster, G. C. Bussolino, G. Cristoforetti, A. Faenov, A. Giulietti, D. Giulietti, L. Labate, T. Levato, T. Pikuz, L. A. Gizzi, *High-charge divergent electron beam generation from a high-intensity laser interaction with a gas-cluster target*, Laser Part. Beams **33**, 331-338 (2015)
- A. Anastasia, D. Babusci, F. Baffigi, G. Cantatore, D. Cauz, G. Corradia, S. Dabagov, G. Di Sciascio, R. Di Stefano, C. Ferrari, A. T. Fienberg, A. Fioretti, L. Fulgentini, C. Gabbanini, L. A. Gizzi, D. Hampai, D. W. Hertzog, M. Iacovacci, M. Karuza, J. Kaspar, P. Köster, L. Labate, S. Mastroianni, D. Moricciani, G. Pauletta, L. Santi, G. Venanzoni, *Test of candidate light distributors for the muon $(g-2)$ laser calibration system*, Nucl. Instrum. Meth. Phys. Res. A **788**, 43-48 (2015)
- L. A. Gizzi, L. Labate, F. Baffigi, F. Brandi, G. C. Bussolino, L. Fulgentini, P. Köster, D. Palla, F. Rossi, *Laser-plasma acceleration of electrons for radiobiology and radiation sources*, Nucl. Instrum. Meth. Phys. Res. B **355**, 241-245 (2015)

■ L. Labate, *A laser-driven electron accelerator for radiobiology experiments*, Nuovo Cimento C **38**, 76 (2015)

■ D. Lamia, G. Russo, C. Casarino, L. Gagliano, G. C. Candiano, L. Labate, F. Baffigi, L. Fulgentini, A. Giulietti, P. Köster, D. Palla, L. A. Gizzi, M. C. Gilardi, *Monte Carlo application based on GEANT4 toolkit to simulate a laser-plasma electron beam line for radiobiological studies*, Nucl. Instrum. Meth. Phys. Res. A **786**, 113-119 (2015)

■ P. Köster, N. Booth, C. A. Cecchetti, H. Chen, R. G. Evans, G. Gregori, L. Labate, T. Levato, Bin Li, M. Makita, J. Mithen, C. D. Murphy, M. Notley, R. Pattathil, D. Riley, N. Woolsey, L. A. Gizzi, *Evidence of locally enhanced target heating due to instabilities of counter-streaming fast electron beams*, Phys. Plasmas **22**, 020701 (2015)

■ J. Badziak, L. Antonelli, F. Baffigi, D. Batani, T. Chodukowski, G. Cristoforetti, R. Dudzak, L. A. Gizzi, G. Folpini, F. Hall, Z. Kalinowska, P. Koester, E. Krousky, M. Kucharik, L. Labate, R. Liska, G. Malka, Y. Maheut, P. Parys, M. Pfeifer, T. Pisarczyk, O. Renner, M. Rosinski, L. Ryc, J. Skala, M. Smid, C. Spindloe, J. Ullschmied, A. Zaraš-Szydlowska, *Studied of ablated plasma and shocks produced in a planar target by a sub-nanosecond laser pulse of intensity relevant to shock ignition*, Laser Part. Beams **33**, 561-575 (2015)

2014

■ Y. Oishi, D. Giulietti, F. Baffigi, L. Fulgentini, A. Giulietti, P. Köster, L. Labate, M. Kando, L. A. Gizzi, *Focusing and stabilizing laser-plasma-generated electron beams with magnetic devices*, Japan. J. Appl. Phys. **53**, 092702 (2014)

■ G. Cristoforetti, A. Anzalone, F. Baffigi, G. Bussolino, G. D'Arrigo, L. Fulgentini, A. Giulietti, P. Köster, L. Labate, S. Tudisco, L. A. Gizzi, *Investigation on laser-plasma coupling in intense, ultrashort irradiation of a nanostructured silicon target*, Plasma Phys. Controll. Fusion **56**, 095001 (2014)

■ S. Agosteo, M. P. Anania, M. Caresana, G. A. P. Cirrone, C. De Martinis, D. Delle Side, A. Fazzi, G. Gatti, D. Giove, D. Giulietti, L. A. Gizzi, L. Labate, P. Londrillo, M. Maggiore, V. Nassisi, S. Sinigardi, A. Tramontana, F. Schillaci, V. Scuderi, G. Turchetti, V. Varoli, L Velardi, *The LILIA (laser induced light ions acceleration) experiment at LNF*, Nucl. Instrum. Meth. Phys. Res. B **331**, 15-19 (2014)

■ F. Baffigi, G. Cristoforetti, L. Fulgentini, A. Giulietti, P. Köster, L. Labate, L. A. Gizzi, *X-ray conversion of ultra-short laser pulses on a solid sample: role of electron waves excited in the pre-plasma*, Phys. Plasmas **21**, 071208 (2014)

■ Y. Maheut, L. Antonelli, S. Atzeni, J. Badziak, F. Baffigi, D. Batani, C. A. Cecchetti, T. Chodukowski, F. Consoli, G. Cristoforetti, R. De Angelis, G. Folpini, L. A. Gizzi, Z. Kalinowska, M. Kucharik, P. Köster, E. Krousky, L. Labate, T. Levato, R. Liska, G. Malka, A. Marocchino, P. Nicolaï, T. O'Dell, P. Parys, T. Pisarczyk, P. Raczka, O. renner, Y. J. Rhee, X. Ribeyre, M. Richetta, M. Rosinski, L. Ryc, J. Skala, A. Schiavi, G. Schurtz, M. Smid, C. Spindloe, J. Ullschmied, J. Wolowski, A. Zaras, *Experiment on laser interaction with a planar target for conditions relevant to shock ignition*, Physica Scripta **T161**, 014017 (2014)

■ D. Batani, L. Antonelli, S. Atzeni, J. Badziak, F. Baffigi, T. Chodukowski, F. Consoli, G. Cristoforetti, R. De Angelis, R. Dudzak, G. Folpini, L. Giuffrida, L. A. Gizzi, Z. Kalinowska, P. Köster, E. Korusky, M. Krus, L. Labate, T. Levato, Y. Maheut, G. Malka, D. Margarone, A. Marocchino, J. Nejdl, Ph. Nicolaï, T. O'Dell, T. Pisarczyk, O. renner, Y. J. Rhee, X. Ribeyre, M. Richetta, M. Rosinski, M. Sawicka, A. Schiavi, J. Skala, M. Smid, Ch. Spindloe, J. Ullschmied, A. Velyhan, T. Vinci, *Generation of high pressure shocks relevant to the shock-intensity regime*, Phys. Plasmas **21**, 032710 (2014)

■ T. Pisarczyk, S. Yu. Gus'kov, Z. Kalinowska, J. Badziak, D. Batani, L. Antonelli, G. Folpini, Y. Maheut, F. Baffigi, S. Borodziuk, T. Chodukowski, G. Cristoforetti, N. N. Demchenko, L. A. Gizzi, A. Kasperczuk, P. Köster, E. Krousky, L. Labate, P. Parys, M. Pfeifer, O. Renner, M. Smid, M. Rosinski, J. Skala, R. Dudzak, J. Ullschmied, P. Pisarczyk, *Pre-plasma effect on energy transfer from laser beam to shock wave generated in solid target*, Phys. Plasmas **21**, 012708 (2014)

■ M. Ferrario, ..., L. Labate, ..., F. Zomer, *IRIDE: Interdisciplinary research infrastructure based on dual electron linacs and lasers*, Nucl. Instrum. Meth. Phys. Res. A **740**, 138-146 (2014)

■ G. Grittani, M. P. Anania, G. Gatti, D. Giulietti, M. Kando, M. Krus, L. Labate, T. Levato, P. Londrillo, F. Rossi, L. A. Gizzi, *High energy electrons from interaction with a structured gas-jet at FLAME*, Nucl. Instrum. Meth. Phys. Res. A **740**, 257-265 (2014)

■ P. Ferrara, M. Ciofini, L. Esposito, J. Hostaša, L. Labate†, A. Lapucci, A. Pirri, G. Toci, M. Vannini, L. A. Gizzi, *3D numerical simulation of Yb:YAG active slabs with longitudinal doping gradient for thermal load effects assessment*, Optics Express **22**, 5375-5386 (2014) †*corresponding author*

2013

■ P. Köster, L. Antonelli, S. Atzeni, J. Badziak, F. Baffigi, D. Batani, C. A. Cecchetti, T. Chodukowski, F. Consoli, G. Cristoforetti, R. De Angelis, G. Folpini, L. A. Gizzi, Z. Kalinowska, E. Krousky, M. Kucharik, L. Labate, T. Levato, R. Liska, G. Malka, Y. Maheut, A. Marocchino, P. Nicolai, T. O'Dell, P. Parys, T. Pisarczyk, P. Raczka, O. Renner, Y. J. Rhee, X. Ribeyre, M. Richetta, M. Rosinski, L. Ryc, J. Skala, A. Schiavi, G. Schurtz, M. Smid, C. Spindloe, J. Ullschmied, J. Wolowski, A. Zaras, *Recent results from experimental studies on laser-plasma coupling in a shock ignition relevant regime*, Plasma Phys. Controll. Fusion **55**, 124045 (2013)

■ T. Ceccotti, V. Floquet, A. Sgattoni, A. Bigongiari, O. Klimo, M. Raynaud, C. Riconda, A. Heron, F. Baffigi, L. Labate, L. A. Gizzi, L. Vassura, J. Fuchs, M. Passoni, M. Kveton, F. Novotny, M. Possolt, J. Prokupek, J. Proska, J. Psikal, L. Stolcova, A. Velyhan, M. Bougeard, P. D' Oliveira, O. Tcherbakoff, F. Reau, P. Martin, A. Macchi, *Evidence of resonant surface-wave excitation in the relativistic regime through measurements of proton acceleration from grating targets*, Phys. Rev. Lett. **111**, 185001 (2013)

■ V. Floquet, O. Klimo, J. Psikal, A. Velyhan, J. Limpouch, J. Proska, F. Novotny, L. Stolcova, A. Macchi, A. sgattoni, L. Vassura, L. Labate, F. Baffigi, L. A. Gizzi, Ph. Martin, T. Ceccotti, *Micro-sphere layered targets efficiency in laser-driven proton acceleration*, J. Appl. Phys. **114**, 083305 (2013)

■ A. Giulietti, A. André, S. Dobosz Dufrénoy, D. Giulietti, T. Hosokai, P. Koester, H. Kotaki, L. Labate, T. Levato, R. Nuter, N. C. Pathak, P. Monot, L. A. Gizzi, *Space- and time-resolved observation of extreme laser frequency upshifting during ultrafast ionization*, Phys. Plasmas **20**, 082307 (2013)

■ L. A. Gizzi, M. P. Anania, G. Gatti, D. Giulietti, G. Grittani, M. Kando, M. Krus, L. Labate, T. Levato, Y. Oishi, F. Rossi, *Acceleration with self-injection for an all-optical radiation source at LNF*, Nucl. Instrum. Meth. Phys. Res. B **309**, 202-209 (2013)

■ G. C. Bussolino, A. Faenov, A. Giulietti, D. Giulietti, P. Köster, L. Labate, T. Levato, T. Pikuz, L. A. Gizzi, *Electron radiography using a table-top laser-cluster plasma accelerator*, J. Phys. D - Appl. Phys. **46**, 245501 (2013)

■ P. Valente, F. Anelli, A. Bacci, D. Batani, M. Bellaveglia, R. Benocci, C. Benedetti, L. Cacciotti, C. A. Cecchetti, A. Clozza, L. Cultrera, G. Di Pirro, N. Drenska, R. Faccini, M. Ferrario, D. Filippetto, S. Fioravanti, A. Gallo, A. Gamucci, G. Gatti, A. Ghigo, A. Giulietti, D. Giulietti, L. A. Gizzi, P. Köster, L. Labate, T. Levato, V. Lollo, P. Londrillo, S. Martellotti, E. Pace, N. Pathak, A. Rossi, F. Tani, L. Serafini, G. Turchetti, C. Vaccarezza, *Development of a multi-GeV spectrometer for laser-plasma experiment at FLAME*, Nucl. Instrum. Meth. Phys. Res. A **653**, 42-46 (2011)

■ N. C. Pathak, C. A. Cecchetti, A. Gamucci, A. Giulietti, D. Giulietti, P. Koester, L. Labate, T. Levato, L. Nizzoli, F. Piastra, L. A. Gizzi, *Influence of atomic species on laser pulse propagation in underdense plasmas*, Nucl. Instrum. Meth. Phys. Res. A **653**, 126-129 (2011)

■ N. Booth, R. J. Clarke, D. Doria, L. A. Gizzi, G. Gregori, P. Hake, P. Koester, L. Labate, T. Levato, B. Li, M. Makita, R. C. Mancini, J. Pasley, P. P. Rajev, D. Riley, A. P. L. Robinson, E. Wagenaars, J. N. Waugh, N. C. Woolsey, *Measuring fast electron distribution functions at intensities up to* $10^{21}\,\mathrm{W/cm^2}$, Nucl. Instrum. Meth. Phys. Res. A **653**, 137-139 (2011)

■ S. Jacquemot, F. Amiranoff, S. D. Baton, J. C. Chanteloup, C. Labaune, M. Koenig, D. T. Michel, F. Pérez, H. P. Schlenvoigt, B. Canaud, C. C. Clerouin, G. Debras, S. Depierreux, J. Ebrardt, D. Juraszek, S. Lafitte, P. Loiseau, J. L. Miquel, F. Philippe, C. Rousseaux, N. Blanchot, C. B. Edwards, P. Norreys, S. Atzeni, A. Schiavi, J. Breil, J. L. Feugeas, L. Hallo, M. Lafon, X. Rybeire, J. J. Santos, G. Schurtz, V. Tikhonchuk, A. Debayle, J. J. Honrubia, M. Temporal, D. Batani, J. R. Davies, F. Fluza, R. A. Fonseca, L. O. Silva, L. A. Gizzi, P. Koester, L. Labate, J. Badziak, O. Klimo, *Studying ignition schemes on European laser facilities*, Nucl. Fusion **51**, 094025 (2011)

■ N. C. Woolsey, R. J. Clarke, D. Doria, L. A. Gizzi, G. Gregori, P. Hakel, S. B. Hansen, P. Köster, L. Labate, T. Levato, B. Li, M. Makita, R. C. Mancini, J. Pasley, P. P. Rajeev, A. P. L. Robinson, E. Wagenaars, J. N. Waugh, N. Booth, *Precision X-ray spectroscopy of intense laser-plasma interactions*, High Energy Density Phys. **7**, 105-109 (2011)

■ L. Volpe, R. Jafer, B. Vauzour, P. Nicolai, J. J. Santos, F. Dorchies, C. Fourment, S. Hulin, C. Regan, F. Pérez, S. Baton, K. Lancaster, M. Galimberti, R. Heathcote, M. Tolley, C. Spindloe, W. Nazarov, P. Köster, L. Labate, L. A. Gizzi, C. Benedetti, A. Sgattoni, M. Richetta, J. Pasley, F. N. Beg, S. Chawla, D. P. Higginson, A. G. MacPhee, D. Batani, *Proton radiography of cylindrical laser-driven implosions*, Plasma Phys. Controll. Fusion **53**, 032003 (2011)

■ L. A. Gizzi, S. Betti, E. Förster, D. Giulietti, S. Höfer, P. Köster, L. Labate, R. Lotzsch, A. P. L. Robinson, I. Uschmann, *Role of resistivity gradient in laser-driven ion acceleration*, Phys. Rev. Spec. Top. - Accel. Beams **14**, 011301 (2011)

■ B. Vauzour, F. Pérez, L. Volpe, K. Lancaster, Ph. Nicolai, D. Batani, S. D. Baton, F. N. Beg, C. Benedetti, E. Brambrink, S. Chawla, F. Dorchies, C. Fourment, M. Galimberti, L. A. Gizzi, R. Heathcote, D. P. Higginson, S. Hulin, R. Jafer, P. Köster, L. Labate, A. J. MacKinnon, A. G. MacPhee, W. Nazarov, J. Pasley, C. Regan, X. Rybeyre, M. Richetta, G. Schurtz, A. Sgattoni, J. J. Santos, *Laser-driven cylindrical compression of targets for fast electron transport study in warm and dense plasmas*, Phys. Plasmas **18**, 043108 (2011)

■ L. Volpe, D. Batani, B. Vauzour, P. Nicolai, J. J. Santos, C. Regan, A. Morace, F. Dorchies, C. Fourment, S. Hulin, F. Perez, S. Baton, K. Lancaster, M. Galimberti, R. Heathcote, M. Tolley, C. Spindloe, P. Koester, L. Labate, L. A. Gizzi, C. Benedetti, A. Sgattoni, M. Richetta, J. Pasley, F. Beg, S. Chawla, D. P. Higginson, A. G. MacPhee, *Proton radiography of laser-driven imploding target in cylindrical geometry*, Phys. Plasmas **18**, 012704 (2011)

■ D. Giulietti, C. A. Cecchetti, N. V. Drenska, R. Faccini, C. Gatti, G. Gatti, A. Giulietti, L. A. Gizzi, L. Labate, T. Levato, S. Martellotti, N. Pathak, P. Valente, *Control of the propagation of intense laser pulses in gas for laser plasma acceleration*, Nukleonika **57**, 221-225 (2011)

■ D. Batani, L. A. Gizzi, P. Koester, L. Labate, J. Honrubia, L. Antonelli, A. Morace, L. Volpe, J. J. Santos, G. Schurtz, S. Hulin, X. Ribeyre, P. Nicolai, B. Vauzour, F. Dorchies, W. Nazarov, J. Pasley, M. Richetta, K. Lancaster, C. Spindloe, M. Tolley, D. Neely, M. Kozlova, J. Nejdl, B. Rus, J. Wolowski, J. Badziak, *Experimental results on advanced inertial fusion schemes obtained within the HiPER project*, Nukleonika **57**, 3-10 (2011)

2010

■ F. Zamponi, A. Lübcke, T. Kämpfer, I. Uschmann, E. Förster, A. P. L. Robinson, A. Giulietti, P. Köster, L. Labate, T. Levato, L. A. Gizzi, *Directional Bremsstrahlung from a Ti laser-produced X-ray source at relativistic intensities in the 3-12 keV range*, Phys. Rev. Lett. **105**, 085001 (2010)

■ L. A. Gizzi, P. Köster, L. Labate, T. Levato, *Progress in X-ray imaging and spectroscopy of ultraintense laser-matter interactions*, Nucl. Instrum. Meth. Phys. Res. A **623**, 836-841 (2010)

■ R. Faccini, F. Anelli, A. Bacci, D. Batani, M. Bellaveglia, R. Benocci, C. Benedetti, L. Cacciotti, C. A. Cecchetti, A. Clozza, L. Cultrera, G. Di Pirro, N. Drenska, M. Ferrario, D. Filippetto, S. Fioravanti, A. Gallo, A. Gamucci, G. Gatti, A. Ghigo, A. Giulietti, D. Giulietti, L. A. Gizzi, P. Köster, L. Labate, T. Levato, V. Lollo, P. Londrillo, S. Martellotti, E. Pace, N. Pathak, A. Rossi, F. Tani, L. Serafini, G. Turchetti, C. Vaccarezza, P. Valente, *Multi-GeV electron spectrometer*, Nucl. Instrum. Meth. Phys. Res. A **623**, 704-708 (2010)

■ T. Levato, L. Labate, N. C. Pathak, C. A. Cecchetti, P. Köster, E. Di Fabrizio, P. Delogu, A. Giulietti, D. Giulietti, L. A. Gizzi, *Pin-hole array production and detailed data analysis for advanced single-shot X-ray imaging of laboratory plasmas*, Nucl. Instrum. Meth. Phys. Res. A **623**, 842-844 (2010)

■ L. Labate, F. Anelli, A. Bacci, D. Batani, M. Bellaveglia, C. Benedetti, R. Benocci, L. Cacciotti, C. A. Cecchetti, O. Ciricosta, A. Clozza, L. Cultrera, G. Di Pirro, N. Drenska, R. Faccini, M. Ferrario, D. Filippetto, S. Gallo, S. Fioravanti, A. Gamucci, G. Gatti, A. Ghigo, A. Giulietti, D. Giulietti, P. Köster, T. Levato, V. Lollo, E. Pace, N. Pathak, A. Rossi, L. Serafini, G. Turchetti, C. Vaccarezza, P. Valente, C. Vicario, L. A. Gizzi, *A self-injection acceleration test experiment for the FLAME laser*, Radiation Effects and Defects in Solids **165**, 787-793 (2010)

■ A. Gamucci, N. Bourgeois, T. Ceccotti, X. Davoine, S. Dobosz, P. D'Oliveira, M. Galimberti, J. Galy, A. Giulietti, D. Giulietti, L. A. Gizzi, D. J. Hamilton, L. Labate, E. Lefebvre, J. R. Marquès, P. Martin, P. Monot, H. Popescu, F. Réau, G. Sarri, P. Tomassini, *Results of a laser-driven electron acceleration experiment and perspectives of application for nuclear studies*, Radiation Effects and Defects in Solids **165**, 774-779 (2010)

■ L. A. Gizzi, S. Betti, E. Förster, A. Giulietti, D. Giulietti, T. Kämpfer, P. Köster, L. Labate, T. Levato, A. Lübcke, A. P. L. Robinson, I. Uschmann, F. Zamponi, *Laser-accelerated ions from layered targets*, Nucl. Instrum. Meth. Phys. Res. A **620**, 83-87 (2010)

2009

■ L. A. Gizzi, F. Anelli, C. Benedetti, C. A. Cecchetti, A. Clozza, G. Di Pirro, N. Drenska, R. Faccini, D. Giulietti, D. Filippetto, S. Fioravanti, A. Gamucci, L. Labate, T. Levato, V. Lollo, P. Londrillo, E. Pace, G. Turchetti, C. Vaccarezza, P. Valente, C. Vicario, *Laser-plasma acceleration with self-injection: a test experiment for the sub-PW laser system at LNF-Frascati*, Nuovo Cimento C **32**, 433-436 (2009)

■ F. Pérez, M. Koenig, D. Batani, S. D. Baton, F. N. Beg, C. Benedetti, E. Brambrink, S. Chawla, F. Dorchies, C. Fourment, M. Galimberti, L. A. Gizzi, R. Heathcote, D. P. Higginson, S. Hulin, R. Jafer, P. Köster, L. Labate, K. Lancaster, A. J. Mackinnon, A. G. MacPhee, W. Nazarov, P. Nicolai, J. Pasley, A. Ravasio, M. Richetta, J. J. Santos, A. Sgattoni, C. Spindloe, B. Vauzour, L. Volpe, *Fast-electron transport in cylindrically laser-compressed matter*, Plasma Phys. Controll. Fusion **51**, 124035 (2009)

■ S. Betti, C. A. Cecchetti, E. Förster, A. Gamucci, A. Giulietti, D. Giulietti, T. Kämpfer, P. Köster, L. Labate, T. Levato, A. Lübcke, I. Uschmann, F. Zamponi, L. A. Gizzi, *On the effect of rear-surface dielectric coatings on laser-driven proton acceleration*, Phys. Plasmas **16**, 100701 (2009)

■ L. Labate, E. Förster, A. Giulietti, D. Giulietti, S. Höfer, T. Kämpfer, P. Köster, M. Kozlova, T. Levato, R. Lötzsch, A. Lübcke, T. Mocek, J. Polan, B. Rus, I. Uschmann, F. Zamponi, L. A. Gizzi, *Experimental investigation of fast electron transport in solid density matter: recent results from a new technique of X-ray energy-encoded 2D imaging*, Laser Part. Beams **27**, 643-649 (2009)

■ L. A. Gizzi, S. Betti, T. Levato, M. Galimberti, A. Giulietti, D. Giulietti, L. Labate, P. Tomassini, P. Monot, T. Ceccotti, P. D'Oliveira, Ph. Martin, *Tracking propagation of ultrashort, intense laser pulses in gases via probing of ionization*, Phys. Rev. E **79**, 056405 (2009)

■ P. Köster, K. Akli, D. Batani, S. Baton, R. G. Evans, A. Giulietti, D. Giulietti, L. A. Gizzi, J. S. Green, M. Koenig, L. Labate, A. Morace, P. Norreys, F. Perez, J. Waugh, N. Woolsey, K. L. Lancaster, *Experimental investigation of fast electron transport through $K\alpha$ imaging and spectroscopy in relativistic laser solid interactions*, Plasma Phys. Controll. Fusion **51**, 014007 (2009)

■ L. A. Gizzi, A. Bacci, S. Betti, C. A. Cecchetti, M. Ferrario, A. Gamucci, D. Giulietti, P. Köster, L. Labate, T. Levato, V. Petrillo, L. Serafini, P. Tomassini, C. Vaccarezza, *An integrated approach to ultraintense laser sciences: the PLASMONX project*, Europ. Phys. Journal - Special Topics **175**, 3-10 (2009)

2008

■ A. Giulietti, N. Bourgeois, T. Ceccotti, X. Davoine, S. Dobosz, P. D'Oliveira, M. Galimberti, J. Galy, A. Gamucci, D. Giulietti, L. A. Gizzi, D. J. Hamilton, E. Lefebvre, L. Labate, J. R. Marquès, P. Monot, H. Popescu, F. Réau, G. Sarri, P. Tomassini, Ph. Martin, *Intense γ-ray source in the Giant Dipole Resonance range driven by 10-TW laser pulses*, Phys. Rev. Lett. **101**, 105002 (2008)

■ L. Labate, T. Levato, M. Galimberti, A. Giulietti, D. Giulietti, M. Sanna, C. Traino, M. Lazzeri, L. A. Gizzi, *A single-photon CCD-based setup for in situ measurement of the X-ray spectrum of mammographic units*, Nucl. Instrum. Meth. Phys. Res. A **594**, 278-282 (2008)

■ T. Levato, L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, *Detailed analysis of events from high-energy X-ray photons impinging on a two-phase front-illuminated CCD*, Nucl. Instrum. Meth. Phys. Res. A **592**, 346-353 (2008)

■ A. Gamucci, N. Bourgeois, T. Ceccotti, S. Dobosz, P. D'Oliveira, M. Galimberti, J. Galy, A. Giulietti, D. Giulietti, L. A. Gizzi, D. J. Hamilton, L. Labate, J.-R. Marquès, P. Monot, H. Popescu, F. Réau, G. Sarri, P. Tomassini, Ph. Martin, *Advanced diagnostics applied to a laser-driven electron acceleration experiment*, IEEE Trans. Plasma Science **36**, 1699-1706 (2008)

■ D. Jung, L. A. Gizzi, L. Labate, D. Neely, M. M. Notley, P. P. Rajeev, M. Roth, G. Gregori, *Experimental characterization of picosecond laser interaction with solid targets*, Phys. Rev. E **77**, 056403 (2008)

■ P. Tomassini, A. Bacci, J. Cary, M. Ferrario, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, L. Serafini, V. Petrillo, *Linear and nonlinear Thomson scattering for advanced X-ray sources in PLASMONX*, IEEE Trans. Plasma Science **36**, 1782-1789 (2008)

■ A. Ya. Faenov, A. I. Magunov, T. A. Pikuz, I. Yu. Skobelev, D. Giulietti, S. Betti, M. Galimberti, A. Gamucci, A. Giulietti, L. A. Gizzi, L. Labate, T. Levato, P. Tomassini, J. R. Marques, N. Bourgeois, S. Dobosz-Dufrenoy, T. Ceccotti, P. Monot, F. Reau, H. Popescu, P. D'Oliveira, Ph. Martin, Y. Fukuda, A. S. Boldarev, S. V. Gasilov, V. A. Gasilov, *Non-adiabatic cluster expansion after ultrashort laser interaction*, Laser Part. Beams **26**, 69-81 (2008)

■ D. Giulietti, S. Betti, M. Galimberti, A. Gamucci, A. Giulietti, L. A. Gizzi, P. Köster, L. Labate, T. Levato, P. Tomassini, *Ionizing radiation sources based on laser produced plasmas and applications*, Radiation Effects and Defects in Solids **163**, 411-417 (2008)

2007

■ L. Labate, A. Giulietti, D. Giulietti, P. Köster, T. Levato, L. A. Gizzi, F. Zamponi, A. Lübcke, T. Kämpfer, I. Uschmann, E. Förster, *Novel X-ray multispectral imaging of ultraintense laser plasmas by a single-photon charge coupled device based pinhole camera*, Rev. Sci. Instrum. **78**, 103507 (2007)

■ G. Collazuol, G. Ambrosi, M. Boscardin, F. Corsi, G. F. Dalla Betta, A. Del Guerra, N. Dinu, M. Galimberti, D. Giulietti, L. A. Gizzi, L. Labate, G. Llosa, S. Marcatili, F. Morsani, C. Piemonte, A. Pozza, L. Zaccarelli, N. Zorzi, *Single photon timing resolution and detection efficiency of the IRST silicon photomultipliers*, Nucl. Instrum. Meth. Phys. Res. A **581**, 461-464 (2007)

■ D. Giulietti, E. Breschi, M. Galimberti, A. Giulietti, L. A. Gizzi, P. Köster, L. Labate, P. Tomassini, Ph. Martin, T. Ceccotti, P. D'Oliveira, P. Monot, M. Borghesi, L. Romagnani, S. Kar, S. Bertolucci, M. Calvetti, A. Schiavi, O. Willi, *High brightness laser induced multi-MeV electron/proton sources*, Int. Journ. Mod. Phys. A **22**, 3810-3825 (2007)

■ A. Ya. Faenov, A. I. Magunov, T. A. Pikuz, I. Yu. Skobelev, D. Giulietti, S. Betti, M. Galimberti, A. Gamucci, A. Giulietti, L. A. Gizzi, L. Labate, T. Levato, P. Tomassini, J. R. Marques, N. Bourgeois, S. Dobosz-Dufrenoy, T. Ceccotti, P. Monot, F. Reau, H. Popescu, P. D'Oliveira, Ph. Martin, Y. Fukuda, A. S. Boldarev, S. V. Gasilov, V. A. Gasilov, *X-ray spectroscopic diagnosis of ultrashort laser-cluster interaction at the stage of the nonadiabatic scattering of clusters*, JETP Letters **86**178-183 (2007)

■ A. Giulietti, M. Galimberti, A. Gamucci, D. Giulietti, L. A. Gizzi, P. Köster, L. Labate, P. Tomassini, T. Ceccotti, P. D'Oliveira, T. Auguste, P. Monot, P. Martin, *Search for stable propagation of intense femtosecond laser pulses in gas*, Laser Part. Beams **25**, 513-521 (2007)

■ L. A. Gizzi, A. Giulietti, D. Giulietti, P. Köster, L. Labate, T. Levato, F. Zamponi, A. Lübcke, T. Kämpfer, I. Uschmann, E. Förster, A. Antonicci, D. Batani, *Observation of electron transport dynamics in high intensity laser interactions using multi-energy monochromatic X-ray imaging*, Plasma Phys. Controll. Fusion **49**, B211-B221 (2007)

■ L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, P. Tomassini, L. A. Gizzi, *Study of forward accelerated fast electrons in ultrashort Ti $K\alpha$ sources*, App. Phys. B **86**, 229-233 (2007)

2006

■ 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*, PRE **74**, 036403 (2006)

■ A. Giulietti, P. Tomassini, M. Galimberti, D. Giulietti, L. A. Gizzi, P. Köster, L. Labate, T. Ceccotti, P. D'Oliveira, T. Auguste, P. Monot, Ph. Martin, *Pre-pulse effect on intense femtosecond laser pulse propagation in gas*, Phys. Plasmas **13**, 093103 (2006)

■ A. Gamucci, M. Galimberti, D. Giulietti, L. A. Gizzi, L. Labate, C. Petcu, P. Tomassini, A. Giulietti, *Production of hollow cylindrical plasmas for laser guiding in acceleration experiments*, App. Phys. B **85**, 611-617 (2006)

2005

- 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)
- P. Köster, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, S. Laville, E. Suarez Garcia, *Quantitative analysis of thin samples by differential absorption imaging using a laser-plasma soft X-ray source*, App. Phys. B **80**, 897-903 (2005)
- D. Giulietti, M. Galimberti, D. Giulietti, L. A. Gizzi, L. Labate, P. Tomassini, *The laser-matter interaction meets the high-energy physics: laser-plasma accelerators and X/γ-ray sources*, Laser Part. Beams **23**, 309-314 (2005)
- S. Laville, L. A. Gizzi, P. Köster, L. Labate, *Differential absorption imaging for elemental analysis of thin samples using a soft laser-plasma X-ray sources*, Nucl. Instrum. Meth. Phys. Res. A **538**, 738-746 (2005)

2004

- P. Tomassini, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, F. Pegoraro, *Laser Wake Field Acceleration with controlled self-injection by sharp density transition*, Laser Part. Beams **22**, 423-429 (2004)
- 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**, 367-372 (2004)
- T. Pikuz, A. Faenov, I. Skobelev, A. Magunov, L. Labate, L. A. Gizzi, M. Galimberti, A. Ziegler, G. Baldacchini, F. Flora, S. Bollanti, P. Di Lazzaro, D. Murra, G. Tomassetti, A. Ritucci, A. Reale, L. Reale, M. Francucci, S. Martellucci, G. Petrocelli, *Easy spectrally tunable highly efficient X-ray backlighting schemes based on spherically bent crystals*, Laser Part. Beams **22**, 289-300 (2004)
- L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, P. Köster, S. Laville, P. Tomassini, *Ray-tracing simulations of a bent crystal X-ray optics for imaging using laser-plasma X-ray sources*, Laser Part. Beams **22**, 253-259 (2004)
- P. Squillacioti, M. Galimberti, L. Labate, P. Tomassini, A. Giulietti, V. Schibkov, F. Zamponi, *Hydrodynamics of micro-plasmas from thin foils exploded by picosecond laser pulses*, Phys. Plasmas **11**, 226-230 (2004)

2003

- P. Tomassini, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, F. Pegoraro, *Production of high-quality electron beams in numerical experiments of laser wakefield acceleration with longitudinal wavebreaking*, Phys. Rev. Spec. Top. - Accel. Beams **6**, 121391 (2003)
- L. A. Gizzi, C. A. Cecchetti, M. Galimberti, A. Giulietti, D. Giulietti, L. Labate, S. Laville, P. Tomassini, *Transient ionization in plasmas produced by point-like irradiation of solid targets*, Phys. Plasmas **10**, 4601-4604 (2003)
- P. Tomassini, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, *Spectroscopy of laser-plasma accelerated electrons: a novel concept based on Thomson scattering*, Phys. Plasmas **10**, 917-920 (2003)

2002

- L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, P. Tomassini, G. Di Cocco, *A laser-plasma source for CCD calibration in the soft X-ray range*, Nucl. Instrum. Meth. Phys. Res. A **495**, 148-153 (2002)
- L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, R. Numico, A. Salvetti, *Analysis of space resolved X-ray spectra from laser plasma*, Laser Part. Beams **20**, 223-226 (2002)

2001

- L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, R. Numico, A. Salvetti, *Line spectroscopy with spatial resolution of laser-plasma X-ray emission*, Laser Part. Beams **19**, 117-123 (2001)

Book chapters
(with peer-review procedure when specified)

▷ L. Labate, P. Tomassini, L.A. Gizzi, *Inverse Compton Scattering X-ray sources*, in *Handbook of X-ray Imaging: Physics and Technology*, CRC Press, to be published (♣ with peer-review procedure)

▷ L. Labate, D. Lamia, G. Russo, *Dosimetry of laser-driven electron beams for radiobiology and medicine*, in *Laser-Driven Particle Acceleration Towards Radiobiology and Medicine*, Springer, 2016, ISBN: 978-3-319-31563-8 (♣ with peer-review procedrue)

▷ A. Giulietti, G. Bussolino, L. Fulgentini, P. Köster, L. Labate, L. A. Gizzi, *Laser-plasma particle sources for biology and medicine*, in *Progress in Ultrafast Laser Science - colume XII (Springer Series in Chemical Physics)*, vol. 112, Springer, 2015, DOI: 10.1007/978-3-319-23657-5_8 (♣ with peer-review procedure)

▷ D. Giulietti, L. Labate, *Laser plasma acceleration and related electromagnetic sources*, in *Progress in Ultrafast Intense Laser Science - volume V (Springer Series in Chemical Physics)*, Springer, 2010 (ISSN 0172-6218) (♣ with peer-review procedure)

Conference proceedings
(with peer-review procedure when specified)

• G. Toci, A. Lapucci, M. Ciofini, L. Esposito, J. Hostasa, L.A. Gizzi, L. Labate, P. Ferrara, A. Pirri, M. Vannini, *Laser and optical properties of Yb:YAG ceramics with layered doping distribution: Design, characterization and evaluation of different production processes*, Proc. SPIE vol. **9726**, article no. 97261P (2016)

• C. Altana, A. Muoio, F. Schillaci, G.A.P. Cirrone, G. Lanzalone, S. Tudisco, F. Brandi, G. Cristoforetti, P. Koester, L. Fulgentini, L. Labate, L.A. Gizzi, *Thomson Parabola spectrometer: A powerful tool for on-line plasma analysis*, Proceedings of the 4th International Conference on Advancements in Nuclear Instrumentation Measurement Methods and their Applications (ANIMMA2015), IEEE Proceedings, ISBN 978-147999918-7, article no. 7465643 (2016)

• G. Lanzalone, C. Altana, A. Anzalone, F. Capuzzello, M. Cavallaro, L. A. Gizzi, L. Labate, L. Lamia, D. Mascali, A. Muoio, F. Negoita, F. Odorici, H. Petrascu, A. Trifirò, M. Trimarchi, S. Tudisco, *Study of nuclear reactions in laser plasmas at future ELI-NP facility*, EPJ Web of Conferences **117**, 05008 (2016)

• L. Antonelli, P. Köster, G. Folpini, Y. Maheut, F. Baffigi, G. Cristoforetti, L. Labate, T. Levato, L. A. Gizzi, F. Consoli, R. De Angelis, Z. Kalinowska, T. Chodukowski, M. Rosinski, P. Parys, T. Pisarczyk, P. Raczka, L. Ryc, J. Badziak, J. Wolowski, M. Smid, O. Renner, E. Krousky, M. Pfeifer, J. Skala, J. Ullschmied, Ph. Nicolaï, X. Ribeyre, G. Shurtz, S. Atzeni, A. Marocchino, A. Schiavi, C. Spindloe, T. Dell, Y.J. Rhee, M. Richetta, D. Batani, *Study of shock wave generation, hot electron production and role of parametric instabilities in an intensity regime relevant for the shock ignition*, J. Phys.: Conf. Series **688**, 012003 (2016)

• G. Toci, A. Lapucci, M. Ciofini, L. Esposito, J. Hostasa, A. Piancastelli, L.A. Gizzi, L. Labate, P. Ferrara, A. Pirri, M. Vannini, *Graded Yb:YAG ceramic structures: Design, fabrication and characterization of the laser performaces*, Proc. SPIE vol. **9513**, article no. 95130R (2015)

• A. Pirri, G. Toci, M. Ciofini, A. Lapucci, L.A. Gizzi, L. Labate, L. Esposito, J. Hostasa, M. Vannini, *Thermal lens measurements in Yb-doped YAG, LuAG, Lu2O3, Sc2O3 ceramic lasers*, J. Phys.: Conf. Series **497**, 012013 (2014)

- Y. Maheut, L. Antonelli, S. Atzeni, J. Badziak, F. Baffigi, D. Batani, C. Cecchetti, T. Chodukowski, F. Consoli, G. Cristoforetti, R. De Angelis, G. Folpini, L. A. Gizzi, Z. Kalinowska, M. Kucharik, P. Köster, E. Krousky, L. Labate, T. Levato, R. Liska, G. Malka, A. Marocchino, Ph. Nicolai, T. O'Dell, P. Parys, T. Pisarczyk, P. Raczka, O. Renner, Y.J. Rhee, X. Ribeyre, M. Richetta, M. Rosinski, L. Ryc, J. Skala, A. Schiavi, G. Schurtz, C. Spindloe, J. Ullschmied, J. Wolowski, A. Zaras, *Experiment on laser interaction with a planar target for conditions relevant to shock ignition*, Phys. Scripta **T161**, 014017 (2014)
- L. Labate, M. G. Andreassi, F. Baffigi, G. Basta, R. Bizzarri, A. Borghini, G. C. Candiano, C. Casarino, M. Cresci, F. Di Martino, L. Fulgentini, F. Ghetti, M. C. Gilardi, A. Giulietti, P. Koester, F. Lenci, T. Levato, Y. Oishi, G. Russo, A. Sgarbossa, C. Traino, L. A. Gizzi, *Small-scale laser based electron accelerators for biology and medicine: a comparative study of the biological effectiveness*, Proc. SPIE, vol. **8779**, article no. UNSP 87790O (2013)
- A. Sgattoni, T. Ceccotti, V. Floquet, A. Bigongiari, M. Raynaud, C. Riconda, F. Baffigi, L. Labate, L. A. Gizzi, L. Vassura, J. Fuchs, O. Klimo, M. Kveton, F. Novotny, M. Possolt, J. Prokupek, J. Proska, J. Psikal, L. Stolcova, A. Velyhan, M. Bougeard, P. Martin, I. Prencipe, A. Zani, D. Dellasega, A. Macchi, M. Passoni, *Laser plasma proton acceleration experiments using foam-covered and grating targets*, Proc. SPIE, vol. **8779**, article no. UNSP 87790L (2013)
- A. Lapucci, M. Ciofini, L. Esposito, P. Ferrara, L. A. Gizzi, J. Hostasa, L. Labate, A. Pirri, G. Toci, M. Vannini, *Characterization of Yb:YAG active media based on a layered structure with different doping*, Proc. SPIE, vol. **8780**, article no. UNSP 87800J (2013)
- G. Grittani, M. P. Anania, G. Gatti, D. Giulietti, M. Kando, M. Krus, L. Labate, T. Levato, Y. Oishi, F. Rossi, L. A. Gizzi, *High energy electrons from interaction with a 10mm gas-jet at FLAME*, Proc. SPIE, vol. **8779**, article no. 87791B (2013)
- M. Ferrario, ..., L. Labate, ...J. C. Rau, *SPARC LAB recent results*, IPAC 2013: Proceedings of the 4th International Particle Accelerator Conference, ISBN: 978-395450122-9 (2013)
- L. A. Gizzi, M. P. Anania, M. Ciofini, L. Esposito, P. Ferrara, G. Gatti, D. Giulietti, G. Grittani, J. Hostasa, M. Kando, M. Krus, L. Labate, A. Lapucci, T. Levato, Y. Oishi, A. Pirri, F. Rossi, G. Toci, M. Vannini, *Laser-plasma acceleration and radiation sources for applications*, Pacific Rim Conference on Lasers and Electro-Optics, CLEO - Technical Digest, article no. 6600069, DOI: 10.1109/CLEOPR.2013.6600069 (2013)
- D. Batani, G. Malka, G. Schurtz, X. Ribeyre, E. Lebel, L. Giuffrida, V. Tikhonchuk, L. Volpe, A. Patria, P. Koester, L. Labate, L. A. Gizzi, L. Antonelli, M. Richetta, J. Nejdl, M. Sawicka, D. Margarone, M. Krus, E. Krousky, J. Skala, P. Dudzak, A. Velyhan, J. Ullshmied, O. Renner, M. Smid, O. Klimo, S. Atzeni, A. Marocchino, A. Schiavi, C. Spindloe, T. O'Dell, T. Vinci, J. Wolowski, J. Badziak, T. Pysarczck, M. Rosinki, Z. Kalinowska, T. Chodukowski, *Preliminary results from recent experiments and future roadmap to shock ignition of fusion targets*, J. Phys.: Conf. Series **399**, 012005 (2012)
- T. Levato, C. A. Cecchetti, L. Labate, L. A. Gizzi, N. Drenska, R. Faccini, S. Martellotti, F. Tani, G. Gatti, C. Vaccarezza, P. Valente, A. Giulietti, V. Lollo, D. Giulietti, N.C. Pathak, F. Piastra, M. Richetta, *Preliminary results of the self-injection test experiment (SITE) at FLAME*, Proc. Intern. School Phys. "Enrico Fermi", vol. 179, 155-161 (2012)
- L. Labate, M. G. Andreassi, F. Baffigi, G. Bussolino, G. Colombetti, G. Cristoforetti, F. Di Martino, L. Fulgentini, F. Ghetti, A. Giulietti, D. Giulietti, P. Köster, F. Lenci, T. Levato, P. Salvadori, A. Sgarbossa, C. Traino, M. Vaselli, L. A. Gizzi, *Study of biological effects of LWFA electrons*, 39th EPS Conference on Plasma Physics, vol. 3 pp. 1858- 1860, ISBN 978-162276981-0 (2012)

- L. Labate, C.A. Cecchetti, A. Giulietti, D. Giulietti, P. Köster, T. Levato, N. Pathak, L. A. Gizzi, *A new technique for X-ray spectroscopy of laser-plasmas with simultaneous 2D spatial resolution over a broad spectral range*, AIP Conference Proceedings vol. **1438**, 161-166 (2012)
- C.A. Cecchetti, A. Giulietti, P. Köster, L. Labate, T. Levato, L.A. Gizzi, L. Antonelli, A. Patria, D. Batani, M. Kozlova, D. Margarone, J. Nejdl, B. Rus, M. Sawicka, M. Lafon, X. Ribeyre, G. Schurtz, *Parametric instabilities study in a shock ignition relevant regime*, Proc. SPIE vol. **8080**, article no. 80802A (2011)
- P. Köster, N. Booth, C. A. Cecchetti, H. Chen, R. G. Evans, G. Gregori, L. Labate, T. Levato, B. Li, M. Makita, J. Mithen, C. Murphy, M. Notley, R. Pattathil, D. Riley, N. Woolsey, L. A. Gizzi, *High resolution X-ray spectroscopy in fast electron transport studies*, Proc. SPIE vol. **8080**, article no. 80802E (2011)
- L. Volpe, D. Batani, B. Vauzour, Ph. Nicolai, J. J. Santos, F. Dorchies, C. Fourment, S. Hulin, C. Regan, F. Perez, S. Baton, M. Koenig, K. Lancaster, M. Galimberti, R. Heathcote, M. Tolley, C. Spindloe, P. Koester, L. Labate, L. A. Gizzi, C. Benedetti, A. Sgattoni, M. Richetta, *Can proton radiography be used to image imploding target in ICF experiments?* Proc. SPIE vol. **8080**, article no. 80802F (2011)
- J. Nejdl, M. Kozlova, M. Sawicka, D. Margarone, M. Krus, J. Prokupek, B. Rus, D. Batani, L. Antonelli, A. Patria, O. Ciricosta, C. Cecchetti, P. Koester, L. Labate, A. Giulietti, L. A. Gizzi, A. Moretti, M. Richetta, G. Schurtz, X. Ribeyre, M. Lafon, C. Spindloe, T. O'Dell, *Investigation of laser plasmas relevant to shock ignition at PALS*, Proc. SPIE vol. **8080**, article no. 80802B (2011)
- D. Batani, M. Koenig, S. Baton, F. Perez, L. A. Gizzi, P. Koester, L. Labate, J. Honrubia, A. Debayle, J. Santos, G. Schurtz, S. Hulin, X. Ribeyre, C. Forment, P. Nicolai, B. Vauzour, L. Gremillet, W. Nazarov, J. Pasley, G. Tallents, M. Richetta, K. Lancaster, C. Spindloe, M. Tolley, D. Neely, P. Norreys, M. Kozlova, J. Nejdl, B. Rus, L. Antonelli, A. Morace, L. Volpe, J. Davies, J. Wolowski, J. Badziak, *Experimental results performed in the framework of the HiPER project*, Proc. SPIE vol. **8080**, article no. 808027 (2011)
- L. A. Gizzi, C. Benedetti, S. Betti, C. A. Cecchetti, A. Gamucci, A. Giulietti, D. Giulietti, P. Koester, L. Labate, T. Levato, F. Michienzi, N. Pathak, A. Sgattoni, G. Turchetti, F. Vittori, *Laser-plasma acceleration: first experimental results from the PLASMONX project*, Proceedings of the *Channeling 2008 Conference*, World Scientific Publishing, pp. 495-501 (2010), ISBN 978-981-4307-00-0
- N. Booth, R. J. Clarke, P. Gallegos, L. A. Gizzi, G. Gregori, P. Koester, L. Labate, T. Levato, B. Li, M. Makita, J. Pasley, P. P. Rajiev, D. Riley, E. Wagenaars, J. N. Waugh, N.C. Woolsey, *X-ray polarization measurements of dense plasmas heated by fast electrons*, AIP Conference Proceedings, vol. **1228**, pp. 79-85 (2010)
- B. Vauzour, M. Koenig, D. Batani, S. Baton, F. N. Feg, C. Benedetti, E. Brambrink, S. Chawla, F. Dorchies, C. Forment, M. Galimberti, L. A. Gizzi, R. Heathcote, D. P. Higginson, S. Hulin, R. Jafer, P. Köster, L. Labate, K. L. Lancaster, A. J. Mackinnon, A. G. MacPhee, W. Nazarov, Ph. Nicolai, J. Pasley, F. Perez, X. Rybeire, M. Richetta, J. J. Santos, G. Shurtz, A. Sgattoni, C. Spindloe, L. Volpe, *X-ray diagnostics of fast electrons propagation in high density plasmas obtained by cylindrical compression*, J. Phys.: Conf. Ser. **244**, 022027 (2010)
- S. Betti, A. Giulietti, D. Giulietti, L. A. Gizzi, M. Vaselli, C. A. Cecchetti, A. Gamucci, P. Koester, L. Labate, N. Pathak, T. Levato, A. A. Andreev, T. Ceccotti, P. Martin, P. Monot, *Towards laser-driven, quasi monoenergetic ion bunches via ultrathin targets nano-structuring?*, AIP Conference Proceedings, vol. **1209** (2010)

- C. A. Cecchetti, S. Betti, A. Gamucci, A. Giulietti, D. Giulietti, P. Koester, L. Labate, N. Pathak, F. Vittori, O. Ciricosta, L. A. Gizzi, *High-charge, multi-MeV electron bunches accelerated in moderate laser-plasma interaction regime*, AIP Conference Proceedings, vol. **1209** (2010)
- O. Ciricosta, L. Labate, S. Atzeni, A. Barbini, D. Batani, R. Benocci, F. Cornolti, M. Galimberti, P. Gaudio, D. Giulietti, L. A. Gizzi, S. Martellucci, M. Richetta, A. Schiavi, M. Vaselli, A. Giulietti, *BLISS@CNR-Pisa: a flexible laser for small scale test experiments on fusion oriented physics*, AIP Conference Proceedings, vol. **1209** (2010)
- A. Gamucci, N. Bourgeois, T. Ceccotti, X. Davoine, S. Dobosz, P. D'Oliveira, M. Galimberti, J. Galy, A. Giulietti, L. A. Gizzi, D. J. Hamilton, L. Labate, E. Lefebvre, J. R. Marques, P. Monot, H. Popescu, F. Reau, G. Sarri, P. Tomassini, Ph. Martin, *Laser-IORT: a laser-driven source of relativistic electrons suitable for IntraOperative Radiation Therapy of tumors*, AIP Conference Proceedings, vol. **1209** (2010)
- T. Levato, N. C. Pathak, C. A. Cecchetti, O. Ciricosta, P. Koester, L. Labate, A. Giulietti, D. Giulietti, F. De Angelis, E. Di Fabrizio, P. Delogu, L. A. Gizzi, *Fabrication of 3μm-diameter pinhole array (PHA) on thick W substrates*, AIP Conference Proceedings, vol. **1209** (2010)
- R. Jafer, L. Volpe, D. Batani, M. Koenig, S. Baton, E. Brambrink, F. Perez, F. Dorchies, J. J. Santos, C. Forment, S. Hulin, Ph. Nicolai, B. Vauzour, K. Lancaster, M. Galimberti, R. Heathcote, M. Tolley, Ch. Spindloe, P. Koester, L. Labate, L. A. Gizzi, C. Benedetti, A. Sgattoni, M. Richetta, J. Pasley, F. Beg, S. Chawla, D. Higginson, A. Mackinnon, A. MacPhee, D. H. Kwon, Y. Rhee, *Proton radiography of a laser-driven cylindrical implosion*, AIP Conference Proceedings, vol. **1209** (2010)
- A. Gamucci, M. Galimberti, D. Giulietti, L. A. Gizzi, T. Hosokai, L. Labate, C. Petcu, P. Tomassini, A. Giulietti, *Production of plasma channels in gas-jets*, SPIE Proc. vol. **6634** (2007)
- L. A. Gizzi, A. Giulietti, D. Giulietti, P. Köster, L. Labate, T. Levato, F. Zamponi, T. Kämpfer, I. Uschmann, E. Förster, R. Sauerbrey, *Optimization and control of bright, ultrafast laser-driven X-ray sources*, SPIE Proc. vol. **6634** (2007)
- L. A. Gizzi, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, P. Tomassini, *Fast electron generation for X-ray production in ultrashort laser interactions with solids*, AIP Conf. Proc. **827**, 505 (2006)
- L. A. Gizzi, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, P. Tomassini, Ph. Martin, T. Ceccotti, P. D'Oliveira, P. Monot, *Measurement of ultrafast ionization from intense laser interactions with gas-jets*, AIP Conf. Proc. **827**, 3 (2006)
- P. Tomassini, D. Giulietti, L. Labate, *Compression of relativistic electron bunches in Laser Wake-Field Accelerators*, Science and Supercomputing at CINECA - report 2005, ISBN 88-86037-16-3
- D. Alesini *et al.*, *The project PLASMONX for plasma acceleration experiments and a Thomson X-ray source at SPARC*, Proceedings of the 2005 Particle Accelerator Conference, IEEE Proceedings, ISBN 0-7803-8859-3 (2005)
- A. Giulietti, M. Galimberti, D. Giulietti, L. A. Gizzi, P. Köster, L. Labate, P. Tomassini, M. Vaselli, *R&D on high energy photonics at the Intense Laser Irradiation Laboratory*, SPIE Proceedings vol. **5974** (2005)
- P. Tomassini, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, R. Numico, *PIC simulation evidence for ultrarelativistic electron bunches produced by nonlinear laser wakefield acceleration*, Proceedings of the Workshop *Nonlinear physics: theory and experiments II*, Lecce, Italy, June 27 - July 6, 2002

Technical, Internal and Conceptual Design Reports

- L. Labate, L. A. Gizzi, *The single-shot Energy-Encoded PinHole Camera diagnostic of laser-produced plasmas: issues related to the spatial and spectral resolution. Part I. Calculation of the Point Spread Function and geometrical effects*, INO-CNR Internal Report 2011 (CNR-INO prot. 000174 of 14/01/2011)

- L. Labate, A. Giulietti, L. A. Gizzi, *GEANT4 simulation of a vacuum-air interface for LWFA accelerated electrons at ILIL*, INO-CNR Internal Report 2010 (CNR-INO prot. 0000151 of 13/01/2011)
- B. Vauzour, F. Dorchies, C. Fourment, S. Hilin, Ph. Nicolai, J. J. Santos, D. Batani, R. Jafer, L. Volpe, M. Koenig, S. D. Baton, E. Brambrink, F. Perez, M. Galimberti, R. Heathcote, K. L. Lancaster, C. Spindloe, F. N. Beg, S. Chawla, D. P. Higginson, L. Gizzi, P. Koester, L. Labate, A. J. MacKinnon, A. G. MacPhee, C. Benedetti, A. Sgattoni, J. Pasley, M. Richetta, J. J. Honrubia, W. Nazarov, *Fast electrons propagation in high density plasmas obtained by cylindrical compression*, Central Laser Facility, Rutherford Appleton Laboratory, STFC (UK) Annual Report 2008-2009
- N. Booth, J. Pasley, E. Wagennars, J. N. Waugh, N. C. Woolsey, G. Gregori, B. Li, L. A. Gizzi, P. Köster, L. Labate, T. Levato, R. J. Clarke, P. P. Rajev, M. Makita, D. Riley, S. B. Hansen, *X-ray polarisation of fast electron heated dense plasmas*, Central Laser Facility, Rutherford Appleton Laboratory, STFC (UK) Annual Report 2008-2009
- F. Perez, M. Koenig, S. D. Baton, E. Brambrink, A. Ravasio, D. Batani, R. Jafer, L. Volpe, F. Dorchies, C. Fourment, S. Hulin, Ph. Nicolai, J. J. Santos, B. Vauzour, M. Galimberti, R. Heathcote, K. L. Lancaster, C. Spindloe, F. N. Beg, S. Chawla, D. P. Higginson, L. A. Gizzi, P. Köster, L. Labate, A. J. MacKinnon, A. G. MacPhee, C. Benedetti, A. Sgattoni, J. Pasley, M. Richetta, W. Nazarov, *Laser-driven cylindrical compression above solid density as a testbed for fast-ignition experiments*, Central Laser Facility, Rutherford Appleton Laboratory, STFC (UK) Annual Report 2008-2009
- S. Betti, A. Giulietti, D. Giulietti, L. A. Gizzi, M. Vaselli, C. A. Cecchetti, A. Gamucci, P. Köster, L. Labate, N. Pathak, T. Levato, A. A. Andreev, T. Ceccotti, P. Martin, P. Monot, *On the possibility of laser generating quasi-monochromatic ion bunches via ultrathin targets nanostructuring*, IPCF-CNR Internal Report prot. 0000151 - 26/01/2009
- L. A. Gizzi, S. Betti, C. A. Cecchetti, A. Gamucci, A. Giulietti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, N. Pathak, F. Vittori, *High charge, multi-MeV electron bunches from laser-plasma acceleration at moderate laser intensity*, IPCF-CNR Internal Report prot. 0003922 - 25/11/2008
- L. Labate, A. Barbini, L. A. Gizzi, L. M. R. Gartside, D. Neely, *Setup of a commercial digital SLR, large area, triggerable CCD camera for optical laser-plasma diagnostics*, Central Laser Facility (SFTC, Rutherford Appleton Laboratory, UK) Annual Report 2007-2008
- P. Köster, A. Giulietti, D. Giulietti, L. Labate, L. A. Gizzi, K. L. Lancaster, P. A. Norreys, J. S. Green, R. G. Evans, S. Baton, F. Perez, M. König, J. Waugh, N. Woolsey, A. Morace, D. Batani, K. Akli, *X-ray measurements of laser-solid interactions on the PW laser*, Central Laser Facility (SFTC, Rutherford Appleton Laboratory, UK) Annual Report 2007-2008
- S. Betti, C. A. Cecchetti, A. Gamucci, A. Giulietti, D. Giulietti, P. Köster, L. Labate, T. Levato, L. A. Gizzi, F. Zamponi, A. Lübcke, T. Kämpfer, I. Uschmann, E. Förster, *Laser-accelerated proton yield control via rear-surface target coating*, IPCF-CNR Internal Report no. 1/2008 (prot. 206 30/01/2008), 2008

■ M. Ferrario, D. Alesini, M. P. Anania, A. Bacci, M. Bellaveglia, O. Bogdanov, R. Boni, M. Castellano, E. Chiadroni, A. Cianchi, S. B. Dabagov, C. De Martinis, D. Di Giovenale, G. Di Pirro, U. Dosselli, A. Drago, A. Esposito, R. Faccini, A. Gallo, M. Gambaccini, C. Gatti, A. Ghigo, D. Giulietti, A. Ligidov, P. Londrillo, S. Lupi, A. Mostacci, E. Pace, L. Palumbo, V. Petrillo, R. Pompili, A. R. Rossi, L. Serafini, B. Spataro, P. Tomassini, G. Turchetti, C. Vaccarezza, F. Villa, G. Dattoli, E. Di Palma, L. Giannessi, A. Petralia, C. Ronsivalle, I. Spassovsky, V. Surrenti, L. A. Gizzi, L. Labate, T. Levato, J. V. Rau, *SPARC_LAB present and future*, Nucl. Instrum. Meth. Phys. Res. B **309**, 183-188 (2013)

■ T. Levato, M. Calvetti, F. Anelli, D. Batani, R. Benocci, L. Cacciotti, C. A. Cecchetti, O. Cerafogli, P. Chimenti, A. Clozza, N. Drenska, A. Esposito, R. Faccini, S. Fioravanti, A. Gamucci, C. Gatti, A. Giulietti, D. Giulietti, L. Labate, V. Lollo, S. Martellotti, M. Monteduro, E. Pace, N. C. Pathak, L. Pellegrino, F. Piastra, M. Pistoni, G. Di Pirro, R. Di Raddo, U. Rotundo, R. Ricci, M. Richetta, C. Vaccarezza, P. Valente, L. A. Gizzi, *First electrons from the new 220 TW Frascati Laser for Acceleration and Multidisciplinary Experiments (FLAME) at Frascati National Laboratories (LNF)*, Nucl. Instrum. Meth. Phys. Res. A **720**, 95-99 (2013)

■ G. Cristoforetti, M. P. Anania, A. Ya. Faenov, A. Giulietti, D. Giulietti, S. B. Hansen, P. Koester, L. Labate, T. Levato, T. A. Pikuz, L. A. Gizzi, *Spatially resolved analysis of $K\alpha$ X-ray emission from plasmas induced by a femtosecond weakly relativistic laser pulse at various polarizations*, Phys. Rev. E **87**, 023103 (2013)

■ L. A. Gizzi, C. Benedetti, C. A. Cecchetti, G. Di Pirro, A. Gamucci, G. Gatti, A. Giulietti, D. Giulietti, P. Koester, L. Labate, T. Levato, N. Pathak, F. Piastra, *Laser-plasma acceleration with FLAME and ILIL ultraintense lasers*, Appl. Sci. **3**, 559-580 (2013)

2012

■ L. Labate, P. Köster, T. Levato, L. A. Gizzi, *A novel technique for single-shot energy-resolved 2D X-ray imaging of plasmas relevant for the Inertial Confinement Fusion*, Rev. Sci. Instrum. **83**, 103504 (2012)

■ N. C. Pathak, G. Bussolino, C. A. Cecchetti, A. Giulietti, D. Giulietti, P. Köster, T. Levato, L. Labate, L. A. Gizzi, *Frequency shift of an intense laser pulse induced by plasma wave*, Nucl. Instrum. Meth. Phys. Res. A **680**, 103-107 (2012)

2011

■ F. Perez, A. Debayle, J. Honrubia, M. Koenig, D. Batani, S. D. Baton, F. N. Beg, C. Benedetti, E. Brambrink, S. Chawla, F. Dorchies, C. Fourment, M. Galimberti, L. A. Gizzi, L. Gremillet, R. Heathcote, D. P. Higginson, S. Hulin, R. Jafer, P. Köster, L. Labate, K. L. Lancaster, A. J. Mackinnon, A. G. MacPhee, W. Nazarov, Ph. Nicolai, J. Pasley, R. Ramis, M. Richetta, J. J. Santos, A. Sgattoni, C. Spindloe, B. Vauzour, T. Vinci, L. Volpe, *Magnetically guided fast electrons in cylindrical compressed matter*, Phys. Rev. Lett. **107**, 065004 (2011)

■ D. Batani, M. Koenig, S. Baton, F. Pérez, L. A. Gizzi, P. Köster, L. Labate, J. Honrubia, L. Antonelli, A. Morace, L. Volpe, J. J. Santos, G. Schurtz, S. Hulin, X. Ribeyre, C. Fourment, P. Nicolai, B. Vauzour, L Gremillet, W. Nazarov, J. Pasley, M. Richetta, K. Lancaster, C. Spindloe, M. Tolley, D. Neely, M. Kozlova, J. Nejdl, B. Rus, J. Wolowski, J. Badziak, F. Dorchies, *The HiPER project for Inertial Confinement Fusion and some experimental results on advanced ignition schemes*, Plasma Phys. Controll. Fusion **53**, 124041 (2011)

■ L. A. Gizzi, C. A. Cecchetti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, T. Levato, N. Pathak, *Thomson scattering imaging from ultrashort ultraintense laser interaction with gas*, IEEE Trans. Plasma Science **39**, 2954-2955 (2011)

- A. Gamucci, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, C. Petcu, P. Tomassini, *Propagazione di impulsi laser in canali di plasma*, IPCF-CNR Internal Report no. TR07-01GA (prot. 0002918 - 17/10/2007), 2007
- T. Levato, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, *Ottiche a policapillari per sorgenti X da plasmi-laser*, IPCF-CNR Internal Report no. 1/012006 (prot. 17/2006), 2006
- L. A. Gizzi, M. Galimberti, A. Giulietti, D. Giulietti, P. Köster, L. Labate, P. Tomassini, *R&D on bright, ultrafast X-ray sources driven by intense femtosecond laser pulses*, IPCF-CNR Internal Report no. 2/200605 (prot. 194/2005), 2005
- D. Giulietti *et al.* , *Plasma Acceleration and Monochromatic X-ray Production (PLASMONX)*, Conceptual Design Report for the INFN project PLASMONX (2005)
- L. Labate, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, P. Köster, S. Laville, P. Tomassini, *Ray-tracing simulations of an X-ray optics based upon a bent crystal for differential absorption applications*, IPCF-CNR Internal Report no. 01/270203 (prot. 307/2003), 2003
- L. A. Gizzi, L. Labate, M. Galimberti, A. Salvetti, *Space resolved X-ray spectroscopy of laser-produced plasmas*, IFAM-CNR Internal Report no. 03-21112000, 2000
- A. Barbini, M. Galimberti, A. Giulietti, D. Giulietti, L. A. Gizzi, L. Labate, A. Salvetti, *New concept X-ray sources at IFAM*, IFAM Internal Report no. 04-01122000, 2000

Pisa (Italy), 20 April 2017

Luca U. Labate