Gilles Jacopo Silvi

I am a third-year **Ph.D. student** in Accelerator Physics at Sapienza University of Rome. My research focuses on the beam dynamics of a two-bunch beam in a C-band photo-injector for PWFA user facility. My work is part of the research program being carried out at SPARC_LAB and EuPRAXIA@SPARC_LAB. Specifically, I am intensively studying the comb configuration to optimize its dynamics in both the C-band RF gun and C-band TW accelerating structures. This involves precisely setting the temporal distance, current, and emittance of the two bunches as required by PWFA, with the ultimate goal of being a viable alternative to EuPRAXIA@SPARC_LAB injector for the high repetition rate solution. Starting from 22/03/2024, and for 6 months, I've been spending a secondment period at the University of California Los Angeles where I focused on two main aspects. Firstly an empirical inquiry into the feasibility of employing alternative metal cathodes, specifically focusing on yttrium (Y), as a substitute for conventional copper (Cu). This investigation aims to elucidate such a transition's viability, efficiency, and potential advantages. Because of a lower work function with respect to Cu, Y photocathodes are particularly appealing for the possibility of illuminating them with visible laser pulses, with the advantage of a higher energy per pulse, paving the way to high repetition rate photoinjectors, driven by conventional laser sources. Secondly a simulation-based activity for emittance compensation and phase space linearization with charge. This technique aims to sacrifice part of the beam in a collimator and freeze the dynamics of the survival beam. I also focused on developing techniques based on the Markov Chain Monte Carlo (MCMC) algorithm for solenoid scan analysis. In the last three years, I collaborated with the SPARC_LAB group at Frascati National Laboratories (LNF) with simulation activities for SPARC linac and experimental measurements.

Golden Paragraph

CURRENT POSITION

1st November 2021- Present: Accelerator physics Ph.D. student, XXXVII cycle, at Sapienza University of Rome (Italy). Thesis title: "High brightness C-band Photoinjector for high rep rate PWFA". Thesis Advisor: Prof. Enrica Chiadroni enrica.chiadroni@uniroma1.it, Prof Andre Mostacci andrea.mistacci@uniroma1.it, Dr. Anna Giribono anna.giribono@lnf.innf.it .

RESEARCH ACTIVITIES

1st November 2021- Present:

- Beam dynamics simulation for high brightness electron beams with ASTRA (A Space Charge Tracking Algorithm) simulation tool for SPARC_LAB injector and EuPRAXIA@SPARC_LAB project, research activities are the following:
  - low charge electron beam (30 pC) optimization for characterization of permanent-magnet quadrupoles, PMQ, at SPARC before the plasma chamber to achieve the optimum transverse matching at the plasma entrance.
  - Plasma Wakefield acceleration beam dynamics studies with the comb configuration connected with the EUPRAXIA@SPARC_LAB project.
  - Beam dynamics optimization of EuPRAXIA@SPARC_LAB RF injector, beam dynamics simulations with X-band linearizer cavity.
  - Beam dynamics studies for high gradient, high brightness, and high repetition rate C-band RF photoinjector.

EDUCATION

30/10/2023: Qualified Radiation protection expert, first-degree.

5/12/2022: Qualified Nuclear Engineer, state exam.

25/11/2021: master's degree in "*Energy and Nuclear Engineering"* at Sapienza University of Rome (Italy), 104/110. Thesis title: "*Energy measurements in a gun photo-injector*". Thesis Advisor: Prof. Enrica Chiadroni enrica.chiadroni@uniroma1.it, Prof. Andre Mostacci andrea.mistacci@uniroma1.it, Dr. Anna Giribono anna.giribono@lnf.innf.it, Prof. Stefano Atzeni stefano.atzeni@uniroma1.it .

14/12/2018: bachelor's degree in "*Energy Engineering*" at Sapienza University of Rome (Italy), 101/110. Thesis title: "Profitability analysis of a nuclear power plant compared to a natural gas power plant". Thesis Advisor: Prof. Luisa Ferroni luisa.ferroni@uniroma1.it , Dr. Renato Urban renatourban@libero.it .

2/07/2015: High School leaving qualification, Scientific High School M. Ramadù, Cisterna di Latina, Italy, 88/100.

PERSOLNAL SKILLS

Lingua madre: ITALIANO

Altre lingue

	COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
English	C1	C1	C1	B2	B2

Livelli: A1/A2: Utente base - B1/B2: Utente intermedio - C1/C2: Utente avanzato
Quadro Comune Europeo di Riferimento delle Lingue

COMPUTER SKILLS

- **Calculation Codes**:
  - Office package.
  - MATLAB is a programming and numeric computing platform used to analyze data, develop algorithms, and create models.
  - Wolfram Mathematica, principal computation environment around the world.
- **Simulation Codes**:
  - *A Space Charge Tracking Algorithm (ASTRA) is a* beam dynamics code that tracks the particles of a distribution under the influence of internal and external fields.
  - *MAD X:* Methodical Accelerator Design is a general-purpose tool for charged-particle optics design and studies in alternating-gradient accelerators and beamlines.
  - *Genetic Interface for OpTimising Tracking with Optics (GIOTTO),* a Genetic Algorithm for beam dynamics optimizations.
  - *Smilei* is a Particle-In-Cell code for plasma simulation. Open-source, collaborative, user-friendly, and designed for high performances on super-computers, it is applied to a wide range of physics studies: from relativistic laser-plasma interaction to astrophysics. Basics use.
  - *General Particle Tracer (GPT),* The General Particle Tracer code is a versatile and comprehensive simulation software used primarily in the field of accelerator physics. It is designed to model and analyze the behavior of charged particles in electromagnetic fields.

ULTERIORI INFORMAZIONI

Pubblications

- 11573/1716056 - 2024 - **Experimental observation of space-charge field screening of a relativistic particle bunch in plasma**

  Verra, L.; Galletti, M.; Pompili, R.; Biagioni, A.; Carillo, M.; Cianchi, A.; Crincoli, L.; Curcio, A.; Demurtas, F.; Di Pirro, G.; Lollo, V.; Parise, G.; Pellegrini, D.; Romeo, S.; Silvi, G.; Villa, F.; Ferrario, And M. - 01a Articolo in rivista

  rivista: PHYSICAL REVIEW LETTERS (Woodbury, NY : American Physical Society) pp. - - issn: 1092-0145 - wos: (0) - scopus: (0)

- 11573/1707552 - 2024 - **Manipulation and wakefield effects on multi-pulse driver beams in PWFA injector stages**

  Bosco, F.; Andonian, G.; Camacho, O.; Carillo, M.; Chiadroni, E.; Giribono, A.; Lawler, G.; Majernik, N.; Manwani, P.; Migliorati, M.; Mostacci, A.; Palumbo, L.; Silvi, G. J.; Spataro, B.; Vaccarezza, C.; Yadav, M.; Rosenzweig, J. - 01a Articolo in rivista

  rivista: INSTRUMENTS (Basel : MDPI AG, 2016-) pp. 1-10 - issn: 2410-390X - wos: (0) - scopus: 2-s2.0-85188952506 (0)

- 11573/1704992 - 2024 - **Advanced studies for the dynamics of high brightness electron beams with the code MILES**

  Bosco, F.; Behtouei, M.; Camacho, O.; Carillo, M.; Chiadroni, E.; Faillace, L.; Ficcadenti, L.; Francescone, D.; Giannessi, L.; Giribono, A.; Giuliano, L.; Nguyen, F.; Palumbo, L.; Rosenzweig, J.; Silvi, G. J.; Spataro, B.; Vaccarezza, C.; Migliorati, M. - 01a Articolo in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 1-8 - issn: 1742-6588 - wos: (0) - scopus: 2-s2.0-85184147510 (0)

- 11573/1706356 - 2024 - **Beam dynamics optimization for high gradient beam driven plasma wakefield acceleration at SPARC-LAB**

  Carillo, M.; Alesini, D.; Anania, M. P.; Behtouei, M.; Bellaveglia, M.; Biagioni, A.; Chiadroni, E.; Cianchi, A.; Costa, G.; Crincoli, L.; Dotto, A. D.; Giorno, M. D.; Pirro, G. D.; Faillace, L.; Francescone, D.; Galletti, M.; Giannessi, L.; Giribono, A.; Giuliano, L.; Iovine, P.; Mostacci, A.; Petrillo, V.; Pompili, R.; Parise, G.; Romeo, S.; Rossi, A. R.; Silvi, G. J.; Shpakov, V.; Vaccarezza, C.; Villa, F.; Ferrario, M. - 04c Atto di convegno in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 1-8 - issn: 1742-6588 - wos: (0) - scopus: 2-s2.0-85184151381 (0)

  congresso: 14th International Particle Accelerator Conference, IPAC 2023 (Venice

Convention Centre, ita)

- 11573/1707554 - 2024 - **On the betatron radiation in cylindrically symmetric plasma-ion channels**

  Francescone, D.; Bosco, F.; Carillo, M.; Chiadroni, E.; Curcio, A.; Cianchi, A.; Ferrario, M.; Galletti, M.; Giuliano, L.; Migliorati, M.; Mostacci, A.; Palumbo, L.; Rossi, A. R.; Shpakov, V.; Silvi, G. J. - 04c Atto di convegno in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 2170-2173 - issn: 1742-6588 - wos: (0) - scopus: (0)

  congresso: 14th International Particle Accelerator Conference, IPAC 2023 (Venice Convention Centre, ita) (Venezia)

- 11573/1706354 - 2024 - **Electron beam analysis and sensitivity studies for the EuPRAXIA@SPARC LAB RF injector**

  Giribono, A.; Alesini, D.; Bacci, A.; Bellaveglia, M.; Cardelli, F.; Chiadroni, E.; Del Dotto, A.; Faillace, L.; Ferrario, M.; Gallo, A.; Ghigo, A.; Giannetti, G.; Mostacci, A.; Opromolla, M.; Petrillo, V.; Piersanti, L.; Pompili, R.; Romeo, S.; Rossetti Conti, M.; Rossi, A. R.; Shpakov, V.; Silvi, G. J.; Vaccarezza, C. - 04c Atto di convegno in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 1-7 - issn: 1742-6588 - wos: (0) - scopus: 2-s2.0-85184137576 (0)

  congresso: 14th International Particle Accelerator Conference, IPAC 2023 (Venice Convention Centre, ita)

- 11573/1712232 - 2024 - **Design of machine learning-based algorithms for virtualized diagnostic on SPARC_LAB accelerator**

  Latini, Giulia; Chiadroni, Enrica; Mostacci, Andrea; Martinelli, Valentina; Serenellini, Beatrice; Silvi, Gilles Jacopo; Pioli, Stefano - 01a Articolo in rivista

  rivista: PHOTONICS (Basel : MDPI) pp. 1-10 - issn: 2304-6732 - wos: WOS:001240359100001 (0) - scopus: (0)

- 11573/1712231 - 2024 - **Guiding of charged particle beams in curved plasma-discharge capillaries**

  Pompili, R.; Anania, M. P.; Biagioni, A.; Carillo, M.; Chiadroni, E.; Cianchi, A.; Costa, G.; Curcio, A.; Crincoli, L.; Del Dotto, A.; Del Giorno, M.; Demurtas, F.; Frazzitta, A.; Galletti, M.; Giribono, A.; Lollo, V.; Opromolla, M.; Parise, G.; Pellegrini, D.; Di Pirro, G.; Romeo, S.; Rossi, A. R.; Silvi, G. J.; Verra, L.; Villa, F.; Zigler, A.; Ferrario, M. - 01a Articolo in rivista

  rivista: PHYSICAL REVIEW LETTERS (American Institute of Physics:2 Huntington Quadrangle, Suite 1NO1:Melville, NY 11747:(800)344-6902, (631)576-2287, EMAIL: subs@aip.org, INTERNET: http://www.aip.org, Fax: (516)349-9704) pp. 1-5 - issn:

0031-9007 - wos: WOS:001231921500001 (0) - scopus: 2-s2.0-85193957624 (0)

- 11573/1712230 - 2024 - **Acceleration and focusing of relativistic electron beams in a compact plasma device**

  Pompili, R.; Anania, M. P.; Biagioni, A.; Carillo, M.; Chiadroni, E.; Cianchi, A.; Costa, G.; Curcio, A.; Crincoli, L.; Del Dotto, A.; Del Giorno, M.; Demurtas, F.; Galletti, M.; Giribono, A.; Lollo, V.; Opromolla, M.; Parise, G.; Pellegrini, D.; Di Pirro, G.; Romeo, S.; Silvi, G. J.; Verra, L.; Villa, F.; Zigler, A.; Ferrario, M. - 01a Articolo in rivista

  rivista: PHYSICAL REVIEW. E (Ridge, NY: American Physical Society, [2016]-) pp. -1 - issn: 2470-0045 - wos: WOS:001221545400001 (0) - scopus: 2-s2.0-85192456424 (0)

- 11573/1704456 - 2024 - **Beam dynamics optimization of EuPRAXIA@SPARCLAB RF injector**

  Silvi, G. J.; Bacci, A. L.; Carillo, M.; Chiadroni, E.; Faillace, L.; Francescone, D.; Giribono, A.; Iovine, P.; Mostacci, A.; Ferrario, M.; Pompili, R.; Vaccarezza, C. - 04c Atto di convegno in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 1-8 - issn: 1742-6588 - wos: (0) - scopus: 2-s2.0-85184153030 (0)

  congresso: 14th International Particle Accelerator Conference, IPAC 2023 (Venice; Italy)

- 11573/1704633 - 2023 - **Dynamics studies of high brightness electron beams in a normal conducting, high repetition rate C - band injector**

  Giribono, A.; Alesini, D.; Cardelli, F.; Di Raddo, G.; Faillace, L.; Ferrario, M.; Gallo, A.; Gizzi, A.; Lauciani, S.; Liedl, A.; Pellegrino, L.; Piersanti, L.; Vaccarezza, C.; Vannozzi, A.; Scifo, J.; Ficcadenti, L.; Castorina, G.; Pedrocchi, G.; Silvi, G. J.; Lucas, T. G. - 01a Articolo in rivista

  rivista: PHYSICAL REVIEW. ACCELERATORS AND BEAMS (College Park, MD : American Physical Society, [2016]-) pp. 1-13 - issn: 2469-9888 - wos: WOS:001061331100001 (2) - scopus: 2-s2.0-85171644403 (2)

- 11573/1707591 - 2023 - **Recent experimental results on the particle driven acceleration at the SPARC_LAB test facility**

  Giribono, A.; Rossi, A.; Del Dotto, A.; Ghigo, A.; Biagioni, A.; Vaccarezza, C.; Alesini, D.; Villa, F.; Costa, G.; Di Pirro, G.; Giannessi, L.; Crincoli, L.; Bellaveglia, M.; Anania, M.; Galletti, M.; Ferrario, M.; Behtouei, M.; Pompili, R.; Romeo, S.; Shpakov, V.; Cardelli, F.; Faillace, L.; Gallo, A.; Piersanti, L.; Cianchi, A.; Mostacci, A.; Chiadroni, E.; Iovine, P.; Carillo, M.; Petrillo, V.; Opromolla, M.; Silvi, G. - 04c Atto di convegno in rivista

rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 2038-2041 - issn: 1742-6588 - wos: (0) - scopus: (0)

congresso: 14th International Particle Accelerator Conference, IPAC 2023 (Venice Convention Centre, ita) (Venezia)

- 11573/1707592 - 2023 - **SAFEST. A compact C-band linear accelerator for VHEE-FLASH radiotherapy**

  Palumbo, L.; Sarti, A.; Mostacci, A.; De Gregorio, A.; De Arcangelis, D.; Francescone, D.; Chiadroni, E.; Franciosini, G.; Ficcadenti, L.; Magi, M.; Carillo, M.; Patera, V.; Gallo, A.; Vannozzi, A.; Spataro, B.; Alesini, D.; Cardelli, F.; Romano, F.; Cuttone, G.; Mauro, G.; Franzini, G.; Milluzzo, G.; Cirrone, G.; Torrisi, G.; Piersanti, L.; Giuliano, L.; Faillace, L.; Di Raddo, R.; Bosco, F.; Di Martino, F.; Bisogni, M.; Silvi, G.; Migliorati, M.; Sorbello, G. - 04c Atto di convegno in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 5079-5082 - issn: 1742-6588 - wos: (0) - scopus: (0)

  congresso: 14th International Particle Accelerator Conference, IPAC 2023 (Venice Convention Centre, ita) (Venezia)

- 11573/1707589 - 2023 - **Numerical studies for EuPRAXIA@SPARC_LAB plasma beam driven working point**

  Romeo, S.; Del Dotto, A.; Rossi, A.; Giribono, A.; Vaccarezza, C.; Ferrario, M.; Silvi, G. J. - 01a Articolo in rivista

  rivista: JOURNAL OF PHYSICS. CONFERENCE SERIES (Bristol : Institute of Physics Publishing) pp. 2042-2045 - issn: 1742-6588 - wos: (0) - scopus: (0)

- 11573/1689539 - 2023 - **Evaluation of the transfer matrix of a plasma ramp with squared cosine shape via an approximate solution of Mathieu differential equation**

  Romeo, S; Biagioni, A; Crincoli, L; Del Dotto, A; Ferrario, M; Giribono, A; Parise, G; Rossi, A R; Silvi, G J; Vaccarezza, C - 01a Articolo in rivista

  rivista: PLASMA PHYSICS AND CONTROLLED FUSION (IOP Publishing Limited:Dirac House, Temple Back, Bristol BS1 6BE United Kingdom:011 44 117 9297481, EMAIL: custserv@iop.org, INTERNET: http://www.iop.org, Fax: 011 44 117 9294318) pp. 1-10 - issn: 0741-3335 - wos: WOS:001079340500001 (0) - scopus: 2-s2.0-85175347498 (0)

- 11573/1707551 - 2023 - **EuPRAXIA@SPARC_LAB status update**

  Villa, Fabio; Alesini, D.; Anania, M. P.; Angelucci, M.; Bacci, A.; Balerna, A.; Bellaveglia, M.; Biagioni, A.; Buonuomo, B.; Cantarella, S.; Cardelli, F.; Carillo, M.; Carpanese, M.; Castellano, M.; Chiadroni, E.; Cianchi, A.; Cioeta, F.; Conti, M. R.; Coreno, M.; Crincoli, L.; Costa, G.; Curcio, A.; Doria, A.; Del Dotto, A.; Del Franco,

M.; Del Giorno, M.; Di Mitri, S.; Di Pasquale, E.; Di Pirro, G.; Drago, A.; Ebrahimpour, Z.; Esposito, A.; Faillace, L.; Falone, A.; Ferrario, M.; Ficcadenti, L.; Franzini, G.; Galletti, M.; Gallo, A.; Ghigo, A.; Giannessi, L.; Giribono, A.; Incremona, S.; Iovine, P.; Iungo, F.; Lauciani, S.; Liedl, A.; Lollo, V.; Lupi, S.; Marcelli, A.; Mostacci, A.; Nguyen, F.; Opromolla, M.; Parise, G.; Pellegrino, L.; Petralia, A.; Petrillo, V.; Piersanti, L.; Pioli, S.; Pompili, R.; Principi, E.; Ricci, R.; Romeo, S.; Rossi, A. R.; Rotundo, U.; Sabbatini, L.; Selce, A.; Spallino, L.; Spataro, B.; Silvi, G. J.; Stecchi, A.; Stella, A.; Stellato, F.; Stocchi, F.; Vaccarezza, C.; Vannozzi, A.; Vescovi, S. - 04b Atto di convegno in volume

congresso: SPIE Optics + Optoelectronics, 2023, Prague, Czech Republic (Prague, Czech Republic)

libro: Proceedings of SPIE - (9781510662827; 9781510662834)

- 11573/1682213 - 2022 - **Design, optimization and experimental characterization of RF injectors for high brightness electron beams and plasma acceleration**

  Shpakov, V.; Alesini, D.; Anania, M. P.; Behtouei, M.; Buonomo, B.; Bellaveglia, M.; Biagioni, A.; Cardelli, F.; Carillo, M.; Chiadroni, E.; Cianchi, A.; Costa, G.; Del Giorno, M.; Faillace, L.; Ferrario, M.; Del Franco, M.; Franzini, G.; Galletti, M.; Giannessi, L.; Giribono, A.; Liedl, A.; Lollo, V.; Mostacci, A.; Di Pirro, G.; Piersanti, L.; Pompili, R.; Di Raddo, G.; Romeo, S.; Silvi, G. J.; Stella, A.; Vaccarezza, C.; Villa, F.; Vannozzi, A. - 01a Articolo in rivista

  rivista: JOURNAL OF INSTRUMENTATION (Bristol : IOP Publishing Ltd, 2006-) pp. - - issn: 1748-0221 - wos: WOS:000906931400001 (0) - scopus: 2-s2.0-85151057981 (1)

Conferences

- **September 2023:** European Advanced Accelerator Concept (EAAC), Isola D'Elba, Italy**,** *"Beam dynamics simulation of a High Brightness High repletion rate RF C-band Photoinjector for future EuPRAXIA@SPARC_LAB upgrade",* contributed oral in parallel session.
- **September 2023:** Italian Physics Society National Congress, Fisciano, Italy, "*Beam dynamics optimization of the EuPRAXIA@SPARC_LAB RF injector*", contributed oral in parallel session.
- **June 2023:** Physics and Application of high brightness beams (PAHBB), San Sebastian, Spain "*Beam Dynamics simulations with X-band linearizer cavity for the EuPRAXIA@SPARC_LAB RF injector",* Poster.
- **May 2023**: 14th International Particle Accelerator Conference (IPAC),

Venice Italy, "*Beam dynamics optimization of the EuPRAXIA@SPARC_LAB RF injector*" and *"Numerical Studies for EuPRAXIA@SPARC_LAB plasma beam driven working point",* Posters.

- **September 2022**: EuroNNAC Special Topic Workshop, Isola D'Elba, Italy**,** *"Beam dynamics studies with comb electron beams for Particle driven Wakefield Acceleration",* Poster.

Prizes

- **2023:** Best oral communication Italian Physics Society National Congress, Fisciano, Italy, "*Beam dynamics optimization of the EuPRAXIA@SPARC_LAB RF injector*".

Scientific Associations

- **November 2021- Present**: Member of "*National Nuclear Physics Institute (INFN)*", subdivision Roma 1 (Italy).
- **June 2021- Present**: Hospitality at "*Frascati National Laboratories (INFN-LNF)*" collaborations during master thesis work and now for Ph.D. activities with SPARC_LAB laboratory.

Didactical Activities

- **2023**: Lecture assistant Course of Physics II (Electromagnetism), for Aerospace

  engineering students held by Professor L. Palumbo. Sapienza, University of Rome.

- **2023**: Lecture assistant Course of Physics II (Electromagnetism), for Mechanical engineering students held by Professor A. Mostacci. Sapienza, University of Rome.
- **2023**: Lecture assistant Course of Accelerator Physics, for Electronic engineering master students, practical sessions with ASTRA simulation tool. Course held by Professor E. Chiadroni, Professor M. Migliorati and Professor A. Mostacci.
- **2023**: Lecture assistant Course of Physics I (Mechanics and Thermodynamics), for Electrical engineering students held by Professor L. Palumbo. Sapienza, University of Rome.

- **2022**: Lecture assistant Course of Physics II (Electromagnetism), for Mechanical engineering students held by Professor A. Mostacci. Sapienza, University of Rome.
- **2022**: Co-supervisor for two Electronic engineering Master Theses, machine learning applied to particle accelerators.
- **2022**: Lecture assistant Course of General Physics (Mechanics, Thermodynamics, and Electromagnetism), for Informatic engineering students held by Professor M. Petrarca. Sapienza, University of Rome.

Courses and stages

- **8/10/2023-10/10/2023**: 4th Smilei User & Training Workshop.
- **27/08/2023-2/08/2023**:*" International Particle Accelerator School"* certificate released by Ettore Majorana Foundation and Center for Scientific Culture.
- **5/02/2023-10/02/2023**: "*Bad Honnef Physics School, Plasma Acceleration"*, certificate released by "*Deutsche Physikalische Gesellschaft (DPG)"*.
- **10/01/2022-11/022022**: "*Joint University of Accelerator School (JUAS)"* course 1 certificate, released by "*European Scientific Institute (ESI)"*, 96 hours.
- **2022**: "*Physics of High Brilliance Accelerators"*, Professor M. Ferrario, Sapienza University of Rome, Italy, 60 hours.
- **2022**: "*Physics, Technology, and Applications of Linear Accelerator"*, Professor D. Alesini, Sapienza University of Rome, Italy, 26 hours.
- **2021**-**2022**: "*Free electron laser (FEL) physics course"*, Prof L. Giannessi.

References

- Prof. **Palumbo** Luigi, Vice-Rector for Strategic Planning - Full Professor at Dept.
of Basic and Applied Science for Engineering, Sapienza University of

Rome.

- Prof. **Migliorati** Mauro, Full Professor at Dept. of Basic and Applied Science for Engineering, Sapienza University of Rome.
- Prof. **Mostacci** Andrea, Associate Professor at Dept. of Basic and Applied Science
  for Engineering, Sapienza University of Rome.
- Prof. **Chiadroni** Enrica, Associate Professor at Dept. of Basic and Applied
  Science for Engineering, Sapienza University of Rome.

Dati personali Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

Il_sottoscritto dichiara di essere consapevole che il presente *curriculum vitae* sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente", nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.

Data
13/09/2024

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