Mostafa Behtouei

CONTACT INFORMATION

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EDUCATION

Ph.D., Electromagnetics, Nanosciences and Mathematical Models for Engineering, (Experimental Physics with Scientific Disciplinary Sector SSD: FIS/01), Nov2015-Feb2019
Università Di Roma "La Sapienza", Rome, Italy

- Thesis: *Design and Measurements of the High Gradient Accelerating Structures*.
- Supervisor: Prof. Luigi Palumbo

EXPERIENCES

Dr. Mostafa Behtouei, received his Ph.D. in Experimental Physics from the University of Rome "La Sapienza". His thesis project, entitled "Design and Measurements of the High Gradient Accelerating Structures" under advisors Prof. Luigi Palumbo (University of Rome) and Dr. Bruno Spataro (INFN-LNF), focuses on the design and measurements of the High Gradient Accelerating Structures, he designed an innovative high gradient structure operating at 11.424 GHz for the breakdown studies. He carried out all the necessary steps of the design: from the initial sketch to the optimized layout. In addition, Mostafa worked on the Compact Light XLS project during his thesis, working on the design of the compact SW and TW accelerating structure operating on the third harmonic with a (100-125) MV/m accelerating gradient, design of a high power Ka-band klystron at the National Institute of Nuclear Physics (INFN) in Frascati, Rome. He also provided a detailed analytical and numerical studies of beam dynamics and design of RF amplifier klystron operating at Ka-band. He was also a part of a research group working on EuPRAXIA SPARC-LAB project, involving the development of a new accelerator at LNF capable to drive a FEL using the beams accelerated by a plasma, the results represent an important milestone and a first demonstration that it is possible to take under control the quality of the beams produced by a plasma accelerator.

Dr. Behtouei has specialized in the development of various RF devices, such as RF Guns, Standing-wave and Traveling-wave structures (Linacs), Klystron etc. He has experience in electromagnetics simulation codes such as HFSS (High Frequency Structures Simulator, three-dimensional), CST Particle Studio, Poisson/SuperFish (two-dimensional), GPT, ECHO3D as well as programming languages like Mathematica, Matlab, Python, C++, Fortran, etc. Mostafa has great skills in Mathematics, Physics and Engineering and these skills made him a theoretical physicist as well as a strong Engineer specially in the field of electromagnetism and complex RF systems analysis and design.
His research experience has provided him with a broad range of skills and knowledge in the field of accelerator physics, specifically in wakefield, impedance, and collective effects. During his time at the National Laboratory of Frascati, he had the opportunity to work alongside world-renowned experts, including Luigi Palumbo, Mauro Migliorati, Bruno Spataro and Mikhail Zobov, on various projects related to the Compact Light XLS and FCC-ee frameworks.
His work with the FCC project involved the calculation of wakefield and impedance for different parts of the machine, with a focus on the collimation system. He utilized various codes, including CST and Echo3d, to model and simulate these effects accurately. His research work in this field has resulted in multiple publications in respected scientific journals. He is also one of the run coordinators of DAFNE where their team recently achieved a

significant milestone by successfully creating the kaonic deuterium exotic atom at INFN-LNF, in collaboration with the Siddharta team.
Mostafa also worked for one year on quantum optics, where he focused on the intricate properties of orbital angular momentum (OAM) in light beams. His research delved into the unique characteristics of OAM and how it can be manipulated for various applications in quantum information and communication. A significant part of his work involved studying the superposition of Laguerre-Gaussian modes, which are essential for generating complex light fields with tailored OAM.

Last year, my work at INFN-LNF focused on the Ceph cluster. I installed and configured Ceph on Tier2, an open-source software designed to provide a distributed storage system based on a low-level object store. This software was essential for creating, with OpenStack technology, one of the nodes of the INFN-DataCloud infrastructure in the Tier2 farm at the National Laboratories of Frascati. Additionally, I worked on installing and configuring OpenStack on the INFN cloud and integrating it with Ceph.

Currently working as a Specialized Scientist at the Centro de Láseres Pulsados (CLPU), focusing on the analytical and numerical study of capillary discharge dynamics in the context of Laser Plasma Wakefield Acceleration (LPWA). My work involves modeling plasma behavior, discharge stability, and guiding properties to optimize plasma channels for high-gradient particle acceleration, performing advanced simulations using FLASH for Magnetohydrodynamics (MHD).

PUBLICATIONS

1. Behtouei, Mostafa, Carlos Salgado Lopez, and Giancarlo Gatti. *Operator Formalism for Laser-Plasma Wakefield Acceleration.* arXiv preprint arXiv:2512.04982 (2025).
2. Benedikt, M., Zimmermann, F., Auchmann, B., Bartmann, W., Behtouei, M., Burnet, J. P., Carli, C., ... & Belli, E. (2025). *Future Circular Collider Feasibility Study Report: Volume 1 Physics, Experiments, Detectors.* The European Physical Journal C 85.12 (2025): 1468.
3. Benedikt, M., Zimmermann, F., Auchmann, B., Bartmann, W., Burnet, Behtouei, M., J. P., Carli, C., ... & Bettoni, S. (2025). *Future circular collider feasibility study report: Volume 2 Accelerators, technical infrastructure and safety.* The European Physical Journal Special Topics, 1-485.
4. Benedikt, M., Zimmermann, F., Auchmann, B., Bartmann, W., Burnet, Behtouei, M., J. P., Carli, C., ... & Bettoni, S. (2025). *Correction: Future Circular Collider Feasibility Study Report.* The European Physical Journal Special Topics, 1-12.
5. Leggieri, A., Behtouei, M., Burt, G., Dolgashev, V., Di Paolo, F., & Spataro, B. (2025). *Harmonic Klystron Frequency Converter.* IEEE Transactions on Electron Devices.
6. Milardi, C., Alesini, D., Behtouei, M., Bilanishvili, S., Bini, S., Boscolo, M., ... & Zobov, M. (2024). *DA Φ NE-2023/24 Activity report.* arXiv preprint arXiv:2409.17845.
7. Milardi, C., Alesini, D., Behtouei, M., Bilanishvili, S., Bini, S., Boscolo, M., ... & Stecchi, A. *DAϕNE Operation Strategy for the Observation of the Kaonic Deuterium.* IPAC24, USA.
8. M. Behtouei, et.al, *Wakefields excited in the FCC-ee collimation system*, Journal of Instrumentation, Volume 19, February 2024
9. D'Auria, G., et al. *The CompactLight Design Study.* The European Physical Journal Special Topics (2024): 1-208.
10. Carillo, M., Alesini, D., Anania, M. P., Behtouei, M., Bellaveglia, M., Biagioni, A., ... & Ferrario, M. (2024). Beam dynamics optimization for high gradient beam driven plasma wakefield acceleration at SPARC-LAB. In Journal of Physics: Conference Series (Vol. 2687, No. 6, p. 062023). IOP Publishing.

11. Bosco, F., Behtouei, M., Camacho, O., Carillo, M., Chiadroni, E., Faillace, L., ... & Migliorati, M. (2024). Advanced studies for the dynamics of high brightness electron beams with the code MILES. In Journal of Physics: Conference Series (Vol. 2687, No. 6, p. 062018). IOP Publishing.
12. Migliorati, M., Behtouei, M., Carideo, E., Rajabi, A., Zhang, Y., & Zobov, M. (2024). Studies of FCC-ee Single Bunch Instabilities with an Updated Impedance Model. In Journal of Physics: Conference Series (Vol. 2687, No. 6, p. 062010). IOP Publishing.
13. Carillo, M., Alesini, D., Anania, M. P., Behtouei, M., Bellaveglia, M., Biagioni, A., ... & Ferrario, M. (2024). Beam dynamics optimization for high gradient beam driven plasma wakefield acceleration at SPARC-LAB. In Journal of Physics: Conference Series (Vol. 2687, No. 6, p. 062023). IOP Publishing.
14. Behtouei, Mostafa. *Invariant subspace problem in Hilbert space: Correlation with the Kadison-Singer problem and the Borel conjecture* arXiv preprint arXiv:2309.00171(2023).
15. Behtouei, Mostafa. *Invariant Subspace Problem in Hilbert Spaces: Exploring Applications in Quantum Mechanics, Control Theory, Operator Algebras, Functional Analysis and Accelerator Physics.* arXiv preprint arXiv:2306.17023 (2023).
16. Behtouei, M., et al. *Studies of a Ka-band high power klystron amplifier at INFN-LNF.* Journal of Physics: Conference Series. Vol. 2420. No. 1. IOP Publishing, 2023.
17. Giuliano, L., Bosco, F., Carillo, M., De Arcangelis, D., Ficcadenti, L., Behtouei, M., ... & Patriarca, A. (2023). *Proposal of a VHEE Linac for FLASH radiotherapy.* In Journal of Physics: Conference Series (Vol. 2420, No. 1, p. 012087). IOP Publishing.
18. Carillo, M., Behtouei, M., Bosco, F., Faillace, L., Ficcadenti, L., Fukasaway, A., ... & Palumbo, L. (2023). *Space charge analysis for low energy photoinjector.* In Journal of Physics: Conference Series (Vol. 2420, No. 1, p. 012058). IOP Publishing.
19. Shpakov, V., Alesini, D., Anania, M. P., Behtouei, M., Buonomo, B., Bellaveglia, M., ... & Vannozzi, A. (2022). *Design, optimization and experimental characterization of RF injectors for high brightness electron beams and plasma acceleration*. Journal of Instrumentation, 17(12), P12022.
20. Leggieri, A., Behtouei, M., Burt, G., Di Paolo, F., & Spataro, B. (2022). *A novel harmonic klystron configuration for high power microwave frequency conversion*. arXiv preprint arXiv:2212.12359.
21. M. Galletti, D. Alesini, M.P. Anania, S. Arjmand, M. Behtouei, M. Ferrarioet al., A. Biagioni, B. Buonomo, F. Cardelli, M. Carpanese, E. Chiadroni, A. Cianchi, G. Costa, A. Del Dotto, M. Del Giorno, F. Dipace, A. Doria, F. Filippi, L. Giannessi, A. Giribono, P. Iovine, V. Lollo, A. Mostacci, F. Nguyen, M. Opromolla, L. Pellegrino, A. Petralia, V. Petrillo, L. Piersanti, G. Di Pirro, R. Pompili, S. Romeo, A.R. Rossi, A. Selce, V. Shpakov, A. Stella, C. Vaccarezza, F. Villa, A. Zigler and M. Ferrario*Stable operation of a free-electron laser driven by a plasma accelerator*, Physical Review Letters, 129(23), 234801.
22. Behtouei, Mostafa, et al. *Theory of Diffraction by Holes of Arbitrary Sizes.* arXiv preprint arXiv:2207.11551 (2022).
23. Behtouei, Mostafa, et al. *A novel method to calculate the magnetic field of a solenoid generated by a surface current element.* Waves in Random and Complex Media (2022): 1-10.
24. R. Pompili, D. Alesini, M.P. Anania, S. Arjmand, M. Behtouei, M. Bellaveglia, ... & M. Ferrario, (2022). *Free-electron lasing with compact beam-driven plasma wakefield accelerator.* Nature, 605(7911), 659-662.
25. Spataro, B., Behtouei, M., Di Paolo, F., & Leggieri, A. (2022). *A low-perveance electron gun for a high-efficiency Ka-band klystron.* The European Physical Journal Plus, 137(7), 1-11.

26. L. Faillace, R. Agustsson, M. Behtouei, F. Bosco, D. Bruhwiler, O. Camacho, M. Carillo, A. Fukasawa, I. Gadjev, A. Giribono, L. Giuliano, S. Kutsaev, N. Majernik, M. Migliorati, A. Mostacci, A. Murokh, L. Palumbo, B. Spataro, S. Tantawi, C. Vaccarezza, O. Williams, and J. B. Rosenzweig, *High field hybrid photoinjector electron source for advanced light source applications*. Accepted for publication in Physical Review Accelerators and Beams, 20 May 2022
27. Behtouei, Mostafa, et al. *Relativistic versus Nonrelativistic Approaches to a Low Perveance High Quality Matched Beam for a High Efficiency Ka-Band Klystron.* Instruments-MDPI 5.4 (2021): 33.
28. Spataro, B., M. Behtouei, L. Faillace, A. Variola, V. A. Dolgashev, J. Rosenzweig, G. Torrisi, and M. Migliorati. *Ka-band linearizer for the Ultra-Compact X-ray free-electron laser at UCLA.* Nuclear Instruments and Methods in Physics Research - Elsevier (2021): 165643.
29. Behtouei, Mostafa, Bruno Spataro, Franco Di Paolo, and Alberto Leggieri. *The Ka-band high power klystron amplifier design program of INFN.* Vacuum - Elsevier (2021): 110377.
30. R. Pompili, D. Alesini, M.P. Anania, M. Behtouei, M. Bellaveglia, A. Biagioni, F.G. Bisesto, M. Cesarini, E. Chiadroni, A. Cianchi, G. Costa, M. Croia, A. Del Dotto, D. Di Giovenale, M. Diomede, F. Dipace, M. Ferrario, A. Giribono, V. Lollo, L. Magnisi, M. Marongiu, A. Mostacci, G. Di Pirro, S. Romeo, A.R. Rossi, J. Scifo, V. Shpakov, C. Vaccarezza, F. Villa, and A. Zigler, *Energy spread minimization in a beam-driven plasma-wakefield accelerator*, Nature Physics (2020): 1-5.
31. V. Shpakov, M.P. Anania, M. Behtouei, M. Bellaveglia, A. Biagioni, F.G. Bisesto, M. Cesarini, E. Chiadroni, A. Cianchi,2 G. Costa, M. Croia, A. Del Dotto, D. Di Giovenale, M. Diomede, F. Dipace, M. Ferrario, M. Galletti, A. Giribono, A. Liedl, V. Lollo, L. Magnisi, A. Mostacci, G. Di Pirro, R. Pompili, S. Romeo, A.R. Rossi, J. Scifo, C. Vaccarezza, F. Villa, and A. Zigler, *High-brightness electron beam from beam-driven plasma wakefield acceleration*, Physical Review Accelerators and Beams, 24(5), 051301
32. M. Behtouei, L. Faillace, L. Palumbo, B. Spataro, A. Variola and M. Migliorati, *Fractional Powers of the Differentiation and Integration Operators and its Application in Accelerator Physics and Technology* , arXiv:2004.01700 [math.CA]
33. M. Behtouei, L. Faillace, B. Spataro, A. Variola and M. Migliorati, *A SW Ka-Band Linearizer Structure with Minimum Surface Electric Field for the Compact Light XLS Project* , Nuclear Instruments and Methods in Physics Research - Elsevier.
34. M. Behtouei, L. Faillace, B. Spataro, A. Variola and M. Migliorati, *A Novel Exact Analytical Expression for the Magnetic Field of a Solenoid* , Waves in Random and Complex Media.
35. Behtouei, Mostafa, et al. *Simulations for a low-perveance high-quality beam matching of a high efficiency Ka-band klystron.* ".arXiv:2012.03737 (2020)
36. M. Behtouei, L. Faillace, M. Ferrario, B. Spataro and A. Variola, *A Ka-band linearizer TW accelerating structure for the Compact Light XLS project*, Journal of Physics: Conference Series.
37. M. Behtouei, L. Faillace, M. Ferrario, B. Spataro and A. Variola, *Initial Design of a High-Power Ka-Band Klystron*, Journal of Physics: Conference Series.
38. L. Faillace, M. Behtouei, V. A. Dolghasev, B. Spataro, G. Torrisi and A. Variola, *Proposal of a Compact High-Gradient Ka-Band Accelerating Structure for Medical and Industrial Applications*, Journal of Physics: Conference Series.
39. M. Behtouei, L. Faillace, M. Migliorati, L. Palumbo and B. Spataro, *New Analytical Derivation of Group Velocity in TW Accelerating Structures*, Journal of Physics: Conference Series , Journal of Physics: Conference Series.

40. L. Faillace, M. Behtouei, A. Variola, G. Torrisi, B. Spataro and V.A. Dolgashev , *Compact Ultra High-Gradient Ka-Band Accelerating Structure for Research, Medical and Industrial Applications*, Proceedings of the IPAC2019, Melbourne, Australia.
41. M. Behtouei, *Design and Measurements of the High Gradient Accelerating Structures*, Ph.D. Dissertation, Sapienza University of Rome, Italy, DOI: 10.13140/RG.2.2.16781.90086 http://hdl.handle.net/11573/1225599
42. M. Behtouei, A. M.S, *Effects of the magnetic flux and the Rashba and Dresselhaus interactions on the tunneling nanoscale magneto resistance of a three-terminal quantum rings"*, Nanotechnology Research and Practice, 2015, Vol.(6), Is. 2, pp.60-67.
43. M. Behtouei, A.M.S, E. Heidari Samiromi, *Effects of the Rashba and the Dresselhaus spin-orbit interactions on the Quantum Transport and spin filtering in a three-terminal quantum ring*, Nanotechnology Research and Practice, 2015, Vol.(5), Is. 1, pp. 4-12.

WORKSHOPS AND MEETINGS

1. De Santis, A., Alesini, D., Behtouei, M., Bilanishvili, S., Bini, S., Boscolo, M., ... & Spampinati, S. *DAΦNE RUN FOR THE SIDDHARTA-2 EXPERIMENT.*, IPAC24, Venice, Italy
2. M. Behtouei, et al., *Collimator model and FCC-ee impedance model*, Workshop on impedance modeling and impedance effects at SuperKEKB and future colliders, Tokyo, Japan, December 2022 (Invited Talk).
3. M. Behtouei, et al., *Collimator model & FCC-ee impedance model*, Joint FCC-France & Italy Workshop in Lyon, France, Novembre 2022 (Invited Talk).
4. M. Behtouei, et al., *FCC-ee Collimator Impedance Model*, FCC-EIC Joint & MDI Workshop 2022, CERN, Geneva, Switzerland, October 2022 (Invited Talk).
5. E. Carideo, M. Migliorati, F. Zimmermann, M. Zobov, D.Quartullo, Y.Zhang, M.Behtouei, B. Spataro *FCC-ee Collective Effects* 65th ICFA Advanced Beam Dynamics Workshop on High Luminosity Circular e+e- Colliders (eeFACT2022), September, INFN-LNF, Italy
6. E. Carideo, M. Migliorati, F. Zimmermann, M. Zobov, D.Quartullo, Y.Zhang, M.Behtouei, B. Spataro *FCC-ee Collective Effects and their mitigation*, 41th International Conference on High Energy Physics (ICHEP 2022), July, Bologna, 2022.
7. M. Migliorati, C. Antuono, M. Behtouei, E. Carideo, B. Spataro, M. Zobov, *Studies and mitigation of collective effects in FCC-ee*, Proceedings of the IPAC 2022, Bangkok, Thailand (Invited Talk).
8. E. Carideo, M. Migliorati, F. Zimmermann, M. Zobov, D.Quartullo, Y.Zhang, M.Behtouei. *Single-Bunch Instabilities*, FCC Week 2022 - Campus des Cordeliers - Sorbonne Universite'.
9. M. Migliorati, C. Antuono, M. Behtouei, E. Carideo, B. Spataro, M. Zobov, *Single-beam collective effects*, FCC Week 2022 - Campus des Cordeliers - Sorbonne Universite'.
10. M. Migliorati, C. Antuono, M. Behtouei, E. Carideo, B. Spataro, M. Zobov, *Impedance budget and single bunch instability for 4IP parameters*, 150th FCC-ee Optics Design Meeting & 21st FCCIS WP2.2 Meeting.
11. M. Behtouei, et.al, *Initial Design of a High-Power Ka-Band Klystron*, workshop EAAC2019, Isola d'Elba, Italy.
12. M. Behtouei, et.al, *Innovative Analytical calculation of the Group velocity in accelerating traveling wave structures.*, workshop EAAC2019, Isola d'Elba, Italy.
13. B. Spataro, M. Behtouei, L. Faillace, M. Migliorati, M.Sciscio' and A. Variola, *A possible RF Design on the 35 GHz accelerating structure for the Compact Light XLS project*, talk at Workshop EAAC2019, Isola d'Elba, Italy.

14. B. Spataro and M. Behtouei, *A K band TW accelerating structure for the Compact light XLS project*, on behalf of the SPARC - LAB collaboration, Compact Light XLS project, WP3 Status Reports, Jun 2018.
15. B. Spataro, M. Behtouei, L. Faillace, M. Migliorati, M.Sciscio' and A. Variola, *A possible linearizer at 35.982 GHz*, on behalf of the SPARC - LAB collaboration, First XLS - CompactLight Annual Meeting, December 2018.
16. J. Scifo, M. Behtouei, L. Faillace, M. Ferrario, B. Spataro, C. Vaccarezza, A. Giribono, G. Torrisi and M. Migliorati, *Beam Dynamics Studies in a Standing Wave Ka-band Linearizer*.

POSTER PRESENTATION

1. M. Behtouei, et.al, "Wakefields excited in the FCC-ee collimation system", *Best Poster Prize, FCC Week 2023, London*, https://indico.cern.ch/event/1202105
2. Crincoli, L., Anania, M. P., Arjmand, S., Behtouei, M., Bellaveglia, M., Biagioni, A., ... & Ferrario, M. "Experimental and theoretical characterization of very long plasma source for plasma-based particle accelerators. (Workshop EuPRAXIA, 2022, Isola d'Elba, Italy)
3. L. Faillace, M. Behtouei, A. Variola, G. Torrisi, B. Spataro and V.A. Dolgashev , "Compact Ultra High-Gradient Ka-Band Accelerating Structure for Research, Medical and Industrial Applications", *Proceedings of the IPAC2019, Melbourne, Australia.*
4. M. Behtouei, L. Faillace, M. Migliorati, L. Palumbo and B. Spataro, "New Analytical Derivation of Group Velocity in TW Accelerating Structures", *Proceedings of the IPAC2019, Melbourne, Australia.*
5. M. Behtouei, et.al, "Initial Design of a High-Power Ka-Band Klystron". (Workshop EAAC2019, Isola d'Elba, Italy)
6. M. Behtouei, et.al, "Innovative Analytical calculation of the Group velocity in accelerating traveling wave structures.". (Workshop EAAC2019, Isola d'Elba, Italy)
7. J. Scifo, M. Behtouei, L. Faillace, M. Ferrario, B. Spataro, C. Vaccarezza, A. Giribono, G. Torrisi and Mauro Migliorati, "Beam Dynamics Studies in a Standing Wave Ka-band Linearizer", *Proceedings of the IPAC2021, Brasil.*
8. G. Torrisi, G. S. Mauro, M. Behtouei, B. Spataro, A. Variola, L. Faillace, V. Dolgashev, M. Migliorati, J. Rosenzweig and G. Sorbello, "Design of a compact Ka-Band Mode Launcher for High-gradient Accelerators", *Proceedings of the IPAC2021, Brasil.*
9. L. Giuliano, F. Bosco, M. Carillo, D.D. Arcangelis, L. Faillace, L. Ficcadenti, M. Migliorati, A. Mostacci, L. Palumbo, D. Alesini, M. Behtouei, B. Spataro, G. Cuttone, G. Torrisi, V. Favaudon, S. Heinrich and A. Patriarca "Preliminary Studies of a Compact VHEE Linear Accelerator System for FLASH", *Proceedings of the IPAC2021, Brasil.*
10. L. Faillace, F. Bosco, M. Carillo, L. Giuliano, M. Migliorati, A. Mostacci, L. Palumbo, M. Behtouei, A. Giribono, B. Spataro, C. Vaccarezza, R. Agustsson, I. Gadjev, S. V. Kutsaev, A. Murokh, S. Tantawi, A. Fukasawa, N. Majernik, J. Rosenzweig and O. Williams, "Beam Dynamics for a High Field C-band Hybrid Photoinjector", *Proceedings of the IPAC2021, Brasil.*
11. F. Bosco, M. Migliorati, L. Giuliano, A. Mostacci, L. Palumbo, M. Behtouei, A. Giribono, B. Spataro, C. Vaccarezza, L. Faillace, M. Carillo and J. Rosenzweig"Modeling Short Range Wakefield Effects in a High Gradient Linac", *Proceedings of the IPAC2021, Brasil.*
12. M. Carillo, M. Behtouei, F. Bosco, L. Faillace, A. Giribono, L. Giuliano, M. Migliorati, A. Mostacci, L. Palumbo, L. Ficcadenti, B. Spataro, C. Vaccarezza and J. Rosenzweig, "Three-Dimensional Space Charge Oscillations in a Hybrid Photoinjector", *Proceedings of the IPAC2021, Brasil.*

13. A. Castilla, A. Latina, X. Liu, I. Syratchev, X. Wu, W. Wuensch, J. Cai, M. Behtouei, B. Spataro, G. Burt, A. W. Cross, L. Zhang, L. Nix "Development of 36 GHz RF Systems for RF Linearisers", *Proceedings of the IPAC2021, Brasil.*

Honors and Awards

- Guest Editor, Journal Axioms (ISSN 2075-1680)
- M. Behtouei, et.al, "Wakefields excited in the FCC-ee collimation system", *Best Poster Prize, FCC Week 2023, London*.
- Postdoc research fellow (Impedance model and collective effects for FCC-ee)
  INFN-LNF, Italian National Institute for Nuclear Physics-National Laboratory of Frascati
  2022-present.
- Postdoc research fellow (Beam Dynamics and RF Design of High-Power High-Frequency (Ka-Band) Amplifiers)
  INFN-LNF, Italian National Institute for Nuclear Physics-National Laboratory of Frascati
  2019-2022.
- Scholarship
  Laziodisu scholarships for best qualified and talented students 2015-2018
  Scholarship for Ph.D Program
- Scholarship
  Laziodisu scholarships for best qualified and talented students (2012-2014)
  Scholarship for Master's Degree
- Scholarship
  Laziodisu scholarships for best qualified and talented students (2008-2011)
  Scholarship for Bachelor's Degree
- Scholarship
  Full scholarship of Teacher Training University for Undergraduate Program (1998-2001)
- Ranked 2nd in the Science Olympiad among Qazvin province students
  May 2000

Professional Experience

- Postdoc researcher at INFN-LNF, Italian National Institute for Nuclear Physics-National Laboratory of Frascati. Feb 2019 - Present
- INFN Associate at INFN-National Institute for Nuclear Physics- Sezione di Roma1
  December 2016 - 2019
- Ph.D Student at University of Rome "La Sapienza"
  Nov 2015 - Feb 2019
- Thesis Project at Universita degli Studi Roma Tre
  March 2014 - September 2015 (1 year 7 months)
  LIME - Lab. Interdipartimentale Microscopia Elettronica
- Mathematics Teacher at Ministry of Education, Iran
  September 2001 - August 2006 (5 years)

COMPUTERS SKILLS

- Operating systems:
  Windows, Mac, Linux
- Languages
  C++, Fortran, Python, Javascript, Solidity
- Other tools:
  Microsoft office, HTML, CSS, React, Wolfram Mathematica, Matlab, LaTeX, Web3 design,
  CST Particle Studio, ECHO3D, Hfss-ANSYS, Superfish, GPT, AutoCAD, CST Microwave Studio, Mathcad, AJDisk, Ceph cluster.

CERTIFICATIONS

- Particle Accelerator Science, JUAS-Joint Universities Accelerator School in partnership with CERN, European Scientific Institute February 2017
- Sustainability-American University for international students
  Arcadia University-License ROME ESSU 360- June 2012
- International Finance-American University for international students
  Arcadia University-License ROMA IBUS 302 -June 2013

COURSES

- Particle Accelerator Science at European Scientific Institute (JUAS)
  - Non-linear effects(Prof. Y. Papaphilippou)
  - Relativity(Prof. H. Henke)
  - Electromagnetism(Prof. H. Henke)
  - Particle optics(Prof. J.M. De Conto)
  - Intro. to Accelerator Design(Prof. Ph. Bryant)
  - Longitudinal Dynamics(Prof. E. Metral)
  - Linacs(Prof. J-B. Lallement)
  - Cyclotrons(Prof. B. Jacquot)
  - Transverse Dynamics(Prof. A. Latina)
  - MADX(Dr. G. Sterbini)
  - Space charge(Prof. M. Migliorati)
  - Synchrotron Radiation(Prof. R. Bartolini)
  - Linear imperfections(Prof.H. Bartosik)
- PhD program in Mathematical Models for Engineering, Electromagnetics and Nanosciences at Sapienza Universita di Roma
  -Accelerator Physics Sciences (European Scientific Institute in Partnership with CERN)
  - Statistical field theory (Prof. Giorgio Parisi)
  - Laser Fundamentals
  - Quantum mechanics (Prof. Andrea Pelissetto)
- Master's Degree, Mechanical Engineering related to Nanotechnology at Universita degli Studi di Roma Tre
  - Mathematical Methods For Engineers
  - Electrical Energetics
  - Machines and Electric Operations
  - Sustainability

- Fundamentals of Materials Science and Technology,Nanotechnology (Prof. Edoardo Bemporad)
- Advanced Automatic Control (Prof. Stefano Panzieri)
- Fundamentals of Mechanical and Thermal Measurements (Prof. Salvatore Andrea Sciuto)
- Engineering and Management of Industrial Systems (Prof. Antonio Casimiro Caputo)

– Bachelor's Degree, Mechanical Engineering at Universita degli Studi di Roma Tre
- Classical Mechanics(Statics,Kinematics,Dynamics) Classical physics
- Engineering mathematics
- Differential Equations
- Advanced Calculus
- Heat Transfer
- Fundamental of Electrical Engineering
- HVAC (heating, ventilation, and air conditioning) Thermodynamics
- Fluid mechanics
- -Elasticity and Plasticity

– Undegraduate Degree, Mathematics at Teacher Training University, Iran
-Linear and Multilinear Algebra
- Mathematics Teaching and Problem Solving
- Fundamentals of Linear Algebra
- Statistics and Probability
- Euclidean and Non-Euclidean Geometry
- Mathematical analysis

CERTIFICATIONS

– Particle Accelerator Science at European Scientific Institute (JUAS)
from January 9th to February 9th in Archamps - France in Partnership with CERN

– Sustainability-American University for international students
Arcadia University-License ROME ESSU 360- June 2012

– International Finance-American University for international students
Arcadia University-License ROMA IBUS 302 -June 2013

– Particle Accelerator Science, JUAS-Joint Universities Accelerator School in partnership with CERN
European Scientific Institute February 2017

– Injection / Extraction Workshop
ESRF - The European Synchrotron

LANGUAGES

– Persian (Native), English, Italian and Turkish