Curriculum Vitae [1]*: MENDEZ, Martin*

Place of Residence: Córdoba, Córdoba, Argentina
E-mail: martinmendez@unc.edu.ar ✻ *Phone:* +54 (294)-4304966
Place of Birth: San Carlos de Bariloche, Río Negro, Argentina
Date of Birth: 03-01-1996 (29 years old)

Academic Background

Ph.D., Doctor of Physics *Postgraduate*
Start Date - End Date *2020 - Present*
Institution: Faculty of Mathematics, Astronomy, Physics, and Computing (FAMAF), National University of Córdoba (UNC)
Advisor: Dr. Lic. PONT, Federico Manuel
Thesis: Quantum electronic structure and dynamics in quantum dots of semiconductor heterostructures

Master's Degree, Master of Physics *Undergraduate*
Start Date - End Date *2018 - 2020*
Institution: FAMAF, UNC
Average with/without failures: 6.00/6.00 - Historical average: 7.36
Program progress percentage: 50%

Master's Degree, Master of Mechanical Engineering *Undergraduate*
Start Date - End Date *2015 - 2019*
Institution: Faculty of Exact, Physical, and Natural Sciences (FCEFyN), UNC
Average with/without failures: 8.02/8.02 - Historical average: 7.00
Final integrative project: Characterization of a composite material, epoxy matrix reinforced with granite particles, for use in the manufacturing of the main structural element (bed) of a CNC lathe

Technical Degree, Technician in Automation and Control Systems *High School*
Start Date - End Date *2009 - 2014*
Institution: Los Andes Technical Cooperative School (ECTLA)

Teaching Experience

Assistant Professor *Mar. 2025 - Feb. 2026*
General Physics II Course *FAMAF, UNC*

- Position obtained: Interim appointment (interim - merit-based)
- Part-time professor responsible for practical classes in a mandatory course for the second year of the Bachelor's degrees in Physics, Astronomy, and Physics Education; development of practical teaching materials, delivery of classes; and grading, administering, and reviewing exams, including oral exams.

Professor *Feb. 2025*
Introductory Course *FAMAF, UNC*

- Position obtained: Professional contract
- Professor in charge of practical classes for the Intensive Entry Course for the Bachelor's degrees in Physics, Mathematics, Astronomy, Computer Science, Applied Mathematics, and Hydrometeorology, as well as the Teaching degrees in Physics and Mathematics. Development of practical teaching materials, delivery of classes; and grading, administering, and reviewing exams.

[1] Última actualization del CV April 5, 2025

Assistant Professor *Mar. 2024 - Feb. 2025*
Introduction to Physics Course *FAMAF, UNC*

- Position obtained: Interim appointment (interim - merit-based)
- Part-time professor responsible for practical classes in a mandatory course for the first year of the Bachelor's degrees in Physics, Mathematics, and Astronomy, and the Teaching degrees in Physics and Mathematics; development of practical teaching materials, delivery of classes; and grading, administering, and reviewing exams, including oral exams.

Assistant Professor *Mar. 2024 - Feb. 2025*
Mathematics I Course *FCQ, UNC*

- Position obtained: Interim appointment (interim - merit-based)
- Part-time professor responsible for practical classes in a mandatory course for the first year of the Biochemistry, Pharmacy, Chemistry, and Biotechnology Bachelor's programs, with a total of 10 weekly hours; development of theoretical and practical teaching materials, delivery of classes; and grading, administering, and reviewing exams.

Teaching Assistant *Mar. 2019 - Mar. 2020*
Rational Mechanics Course, Department of Physics *FCEFyN, UNC*

- Position obtained: Interim appointment (interim - merit-based)
- Student assistant, pro bono, for a mandatory course in the third year of the Industrial, Aeronautical, Mechanical, and Electromechanical Engineering programs; development of teaching materials for students (videos, notes, consultation classes, etc.).

Research Experience

Atomic Collisions Group, Bariloche Atomic Center (CAB, CNEA) *Nov. 2024*
Short Research Stay *San Carlos de Bariloche, Río Negro, Argentina*

- Delivered a seminar for the CAB collisions group and participated in research activities related to the topic: "Entanglement in inelastic collision processes."
- Studied and exchanged knowledge on atomic and molecular physics techniques used by the CAB collisions group and explored applications in specific systems of interest. Reference: Dr. Lic. RANDAZZO, Juan M., +54 (294)-4539360

Acoustics Research and Transfer Center (CINTRA) *Aug. 2019 - Jun. 2020*
Research Residency *Córdoba, Córdoba, Argentina*

- Mechanical design of a head-related transfer function measurement system.
- Development of documentation and writing of related scientific articles.
- Involved projects: PICT 2016-0738, PID 4498, and PID 6565.

  Reference: Dr. Eng. TOMMASINI, Fabián C., +54 (351)-5722550.

National Atomic Energy Commission (CNEA), Bariloche Atomic Center (CAB) *Jan. 2020 - Feb. 2020*
Professional Internship *San Carlos de Bariloche, Río Negro, Argentina*

- Design and optimization of a synthesis process and an experimental device for manufacturing granite-epoxy composites with different compositions and granite particle sizes. Structural and microstructural characterization using XRD, SEM-EDS, and nitrogen physisorption. Mechanical compression and bending tests, and interpretation of measurement curves.

- The work topic was "Characterization of granite-epoxy composite material for its implementation as the main structural element (bed) of precision machine tools" (final project for Mechanical Engineering), developed in the Department of Physical Chemistry of Materials, Applied Research Management, Bariloche Atomic Center (CAB) with a total of 190 hours of work.

  † (See the scientific article produced under this professional experience in the *Publications* section)

  Reference: Dr. Eng. FERNÁNDEZ ALBANESI, Luisa F., +54 (294)-4298917.

Work Experience

Acoustics Research and Transfer Center (CINTRA) *Sep. 2019 - Dec. 2019*
Supervised Professional Practice (PPS) *Córdoba, Córdoba, Argentina*

- As an advanced Mechanical Engineering student at FCEFyN-UNC, carried out the mechanical design of a head-related transfer function measurement system.
- Developed a PPS report describing the work performed and complemented it with a presentation before a panel (Final grade: 10/10).

Innovajelk S. A. *Sep. 2019 - Dec. 2019*
General Technical Assistant *San Carlos de Bariloche, Río Negro, Argentina*

- As an advanced technical student at ECTLA, carried out activities such as manufacturing mechanical parts, developing electronic circuits, repairing electromechanical machines, assembling optical testing devices, and creating CAD technical drawings.

Volunteer Work

Scientific and Technological Collaborator *Nov. 2019*
Parque Educativo Sur *Ballesteros, Córdoba, Argentina*
Participated in the Third Hearing Health Campaign "Stop and Listen" organized by the Córdoba School of Speech Therapists, where audiometric tests were conducted for individuals without access to such services. The tasks performed included providing support to speech therapists to ensure the smooth execution of the campaign.

Conference and Workshop Participation

Department of Surface Physics and Atomic, Molecular, and Optical Physics *Nov. 2024*
In-person *San Carlos de Bariloche, Argentina*
Organizer: Atomic Collisions Division, National Atomic Energy Commission (CNEA), Bariloche Atomic Center (CAB)
Oral Presentation: YES - Poster: NO
Work: Entanglement generation and dynamics of quantum correlations in electron-molecule inelastic scattering.
Authors: Mendez Martin and Pont Federico M.

XIII Conference on Quantum Foundations (CQF XIII) *Nov. 2024*
In-person *Córdoba, Argentina*
Organizer: Enrique Gaviola Institute of Physics (IFEG, CONICET, UNC)
Oral Presentation: NO - Poster: YES
Work: Entanglement generation in electron-molecule scattering processes.
Authors: Mendez Martin and Pont Federico M.

Annual FAMAF Poster Exhibition *Nov. 2024*
In-person *Córdoba, Argentina*
Organizer: FAMAF Student Center and AFA Student Commission
Oral Presentation: NO - Poster: YES

Work: Electron-nucleus correlations from a quantum information perspective applied to a one-dimensional electron-ion scattering model.
Authors: Mendez Martin and Pont Federico M.

V Conference on Foundations, Philosophy, and History of Physics (JFFHF 2024) *Oct. 2024*
Virtual *Buenos Aires, Argentina*
Organizer: Institute of Philosophy, Austral University

109th Meeting of the Argentine Physical Association (RAFA 109) *Sep. 2024*
In-person *San Luis, Argentina*
Organizer: Department of Physics, Faculty of Physical-Mathematical and Natural Sciences, National University of San Luis
Oral Presentation: YES - Poster: YES
Work: Electron-nucleus correlations from a quantum information perspective applied to a one-dimensional electron-molecule scattering model.
Authors: Mendez Martin and Pont Federico M.

International Union for Vacuum Science, Technique, and Applications (IUVSTA 104) *Sep. 2024*
In-person *San Luis, Argentina*
Organizer: Department of Physics, Faculty of Physical-Mathematical and Natural Sciences, National University of San Luis

Sixth Argentine School and Workshop on Quantum Mechanics (CUANTOS 6) *Sep. 2024*
In-person *San Luis, Argentina*
Organizer: Department of Physics, Faculty of Physical-Mathematical and Natural Sciences, National University of San Luis
Oral Presentation: YES - Poster: YES
Work: Electron-nucleus correlations from a quantum information perspective applied to a one-dimensional electron-ion scattering model.
Authors: Mendez Martin and Pont Federico M.

Juliero Workshop 2024 *Jul. 2024 - Aug. 2024*
Hybrid *Córdoba, Argentina*
Organizer: Faculty of Mathematics, Astronomy, Physics, and Computing (FAMAF)
Oral Presentation: YES - Poster: NO
Work: Solving the Schrödinger equation with FEM: Introduction to the "FEMTISE.jl" package.
Authors: Mendez Martin.

The 12th International Conference on Quantum Dots (QD 2024) *Mar. 2024*
In-person *Munich, Germany*
Organizer: Walter Schottky Institute, Technical University of Munich
Oral Presentation: YES - Poster: NO
Work: ICD Electron emission lifetimes in paired vertically stacked QWs from quantum dynamics.
Authors: Mendez Martin, Duarte Javier, Bande Anikka, and Pont Federico M.

IV Conference on Foundations, Philosophy, and History of Physics (JFFHF 2023) *Nov. 2023*
Virtual *Buenos Aires, Argentina*
Organizer: Institute of Philosophy, Austral University

Fifth Argentine School and Workshop on Quantum Mechanics (CUANTOS 5) *Apr. 2023*
In-person *Córdoba, Argentina*
Organizer: Enrique Gaviola Institute of Physics (IFEG, CONICET, UNC)
Oral Presentation: NO - Poster: YES

Work: Mutual information and von Neumann entropy in the quantum dynamics of an electron-nucleus coupling model.
Authors: Mendez Martin and Pont Federico M.

XI Conference on Quantum Foundations (CQF XI) *Nov. 2022*
In-person *Córdoba, Argentina*
Organizer: Enrique Gaviola Institute of Physics (IFEG, CONICET, UNC)

Third Argentine School and Workshop on Quantum Mechanics (CUANTOS 3) *Nov. 2021*
Virtual *La Plata, Buenos Aires, Argentina*
Organizer: La Plata Institute of Physics (IFLP, CONICET, UNLP)

School on Critical Stability of Few-Body Quantum Systems *Oct. 2021*
Virtual *São Paulo, Brazil*
Organizer: São Paulo International Schools on Theoretical Physics (ICTP), South American Institute for Fundamental Research (SAIFR)

Publications

4. Mendez, Martin, and Federico M. Pont. "Dynamics of quantum correlations and entanglement generation in Electron-Molecule inelastic Scattering." arXiv.org, November 15, 2024. (Preprint) https://arxiv.org/abs/2411.10358

3. Mendez, M., Tommasini, F. C., Ferreyra, S. P., Guido, R. M., Bordón, J. C. & Scaliti, F. (2021). Optimization of a platform with controllable horizontal rotational movement for a head-related transfer function measurement system. Revista Tecnología Y Ciencia, (42), 12–26. https://doi.org/10.33414/rtyc.42.12-26.2021.

2. Mendez, M., Bordón, J.C., Guido, R.M., Cravero, G.A. & Tommasini, F.C. (2020) Mechanical design of a speaker support for a head-related transfer function measurement system. In: 2020th edn. Jornadas de Ciencia y Tecnología 2020 "50th anniversary" of the Universidad Tecnológica Nacional Facultad Regional San Francisco. Universidad Tecnológica Nacional Facultad Regional San Francisco, Córdoba, Argentina: UTN. http://ria.utn.edu.ar/xmlui/handle/20.500.12272/4555.

1. Mendez, M., Albanesi, L.F. & Grasso, M.L. (2020) 'Manufacturing and characterization of granite-epoxy for use in machine tools'. Revista de la Facultad de Ciencias Exactas, Físicas y Naturales 7 (2), 51–61. https://revistas.unc.edu.ar/index.php/FCEFyN/article/view/29333.

Courses

Graduate Level

"Introduction to University Teaching: Practical Path" by Dr. BAUINO QUIROGA, Nicolás. FAMAF, UNC. Aug. 2024 - Nov. 2024. [2]

"Quantum Electrodynamics" by Dr. DEPAOLA, Gerardo. FAMAF, UNC. Mar. 2024 - Jun. 2024. [3]

"Introduction to University Teaching: Theoretical Path" by Dr. ECHEVESTE, Emilia M and Dr. BAUINO QUIROGA, Nicolás. FAMAF, UNC. Aug. 2022 - Nov. 2022. [2]

"Introduction to Quantum Optics: Manipulation of Ultracold Atoms with Electromagnetic Fields" by Dr. CORMICK, Cecilia. FAMAF, UNC. Aug. 2022 - Nov. 2022. [2] [4]

[2] Course completed and approved.
[3] Course regularized but not yet approved.
[4] Course required for PhD.

"Partial Differential Equations: Analytical and Numerical Methods" by Dr. REULA, Oscar. FAMAF, UNC. Aug. 2022 - Nov. 2022. [2] [4]

"Computational Physics" by Dr. MARCONI, Verónica I. and Dr. BANCHIO, Adolfo J. FAMAF, UNC. Mar. 2022 - Jun. 2022. [2] [4]

"Parallel Computing" by Dr. WOLOVICK, Nicolás. FAMAF, UNC. Mar. 2021 - Jun. 2021. [2] [4]

Undergraduate Level

Solid State Physics. FAMAF, UNC. Mar. 2022 - Jun. 2022. [2] [4]

Quantum Mechanics II. FAMAF, UNC. Aug. 2021 - Nov. 2021. [2] [4]

Thermodynamics and Statistical Mechanics II. FAMAF, UNC. Aug. 2021 - Nov. 2021. [2] [4]

Quantum Mechanics I. FAMAF, UNC. Mar. 2021 - Jun. 2021. [2] [4]

Other

Programming in Julia with Scientific Applications. FAMAF, UNC. Mar. 2022. [2]

Intensive English Courses - Levels 2, 3, and 4 - Faculty of Languages (FL), UNC. [2]

Technical Computing Skills

Operating Systems	Linux, Windows
Programming Languages	Julia, Fortran, C, Python, Mathematica, LaTeX, Bash, Git
Software	MCTDH, CATIA, Gnuplot, Xmgrace, Jupyter Notebook, VS Code
Cluster Queue Managers	Slurm, SGE

Language Proficiency

Spanish	Native
English	Reading, writing, and speaking (intermediate level)

Awards and Fellowships

CONICET Doctoral Internal Fellowship *Institution: CONICET*
Start Date - End Date *Apr. 2021 - Mar. 2027*

University Award for the Class of 2019 *Institution: FCEFyN, UNC*
Year 2020
Honorary diploma for achieving the highest GPA in the Mechanical Engineering program at FCEFyN-UNC for the class of 2019.

Extras

Hobbies: Trekking, Kayaking, Snowboarding, Soccer, Swimming, Padel, Reading, among others.

Access LinkedIn Profile