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🎓 Academic Studies

Degree

- 2024 PhD in Chemistry **Universidad Nacional de Córdoba**, Córdoba, Argentina
Thesis: *Effect of lipid environment in the conformation and orientation of the transmembrane segments and cytoplasmic of the integrin $\alpha I Ib \beta 3$.*
- 2017 BSc. Chemistry **Universidad del Quindío, Colombia**, Armenia, Colombia
Specialization: Quantum Chemistry - DFT calculations

Diploma

- 2023 Diploma in Data Science: Supervised Learning and its Applications
Universidad Nacional de Córdoba, Córdoba, Argentina

👤 Research Experience

Research Internship

- 2023 and 2024 **King's College London**, London UK
- Conceptualized and evaluated research projects involving molecular dynamics (MD) simulations, ensuring scientific rigor and feasibility. Conducted MD simulations utilizing high-performance computing clusters to generate accurate and reproducible results. Processed and analyzed complex datasets efficiently using advanced Python scripting and automation tools. Designed and presented visually compelling graphs and tables to effectively communicate findings during internal lab meetings. Authored comprehensive reports summarizing simulation outcomes, analyses, and key insights for stakeholders.
- Supervisor: Prof. Christian D. Lorenz, Department of Physics
Supervisor: Prof. Martin Ulmschneider, Department of Chemistry

Teaching Experience

Undergraduate

- 08.2019– Assistant Teacher **Universidad Nacional de Córdoba**, Córdoba, Argentina
- 04.2024 Delivery of agreed package of teaching activities to a high standard. These activities may include seminars, classes, tutorials, lab sessions, other small group work to develop student skills, demonstration for experiments/techniques in lab-based science and computing. Monitor and interact with students during the entire lab session. This means circulating throughout the lab section visually monitoring student performances. Grade homework, lab reports, quizzes, and exams according to the directions provided by the course instructor. Collaborated with large and diverse team.

High Shool

- 06.2017– Science Teacher **Fundación Caicedo González Riopaila Castilla**, Valle, Colombia
- 12.2017 **Instituto Técnico Diversificado Grajales**, Valle, Colombia
- To prepare and deliver new teaching material for multiple classes in chemistry, physics, and biology. This has involved designing and implementing engaging and interactive lessons that cater to the diverse learning needs of my students. I have also worked closely with my colleagues to ensure that our teaching methods are aligned with the latest educational research and best practices.

Publications

- Cifuentes S. Ubeiden; Berrio V. L. Felipe; Cuenú C. Fernando; García R. Alejandro; Lorenz Christian D.;
- Sánchez L. Alberto. OPPh₃py: Synthesis, Molecular Structure, Reactivity, NBO and Nonlinear Optical Analysis of a Phosphine Oxide. *ACS Au*. **To be submitted soon**
- Cifuentes S. Ubeiden; Godino Agustina; Barra Jose L.; Montich Guillermo G. Interactions of Integrin
- α IIb β 3 transmembrane domains with lipids in Langmuir Monolayers. Surface, Mechanical and Topographical Properties. *Langmuir*. **To be submitted soon**
- Cifuentes S. Ubeiden; Ulmschneider Martin; Lorenz Christian D.; Montich Guillermo G.; Galassi Vanesa
- V. Orientation and Lipid-Peptide Interactions of Integrin α IIb β 3 Transmembrane Domains in Lipid Bilayers by Molecular Dynamics Simulations. **In preparation**

Complementary Courses

Postgraduate courses

- 11.2023 Image processing in Python
FAMAF, *Universidad Nacional de Córdoba*; Hours: 16
- 11.2023 Computer vision with Python
FAMAF, *Universidad Nacional de Córdoba*; Hours: 16
- 11.2023 Time series analysis in Python. Introduction
FAMAF, *Universidad Nacional de Córdoba*; Hours: 16
- 10.2021 Protein structure and dynamic
Universidad Nacional de Córdoba; Hours: 40

- 08.2020– Introduction to python programming
- 11.2020 *Universidad Nacional de San Martin*; Hours: 64
- 06.2020– The research article in English. How to write in science
- 07.2020 *Universidad Nacional de Córdoba*; Hours: 20
- 04.2019 Epistemology for the teaching of natural sciences
Universidad Nacional de Córdoba; Hours: 40
- 07.2018 Quantum mechanical methods based on density functional theory - DFT
Universidad Nacional de Córdoba; Hours: 40
- 04.2018 Molecular biophysics of proteins
Universidad Nacional de Córdoba; Hours: 40
- 07.2015 International Summer Schools: Quantum Chemistry
PREFALC (Programme Régional France - Amérique Latine Caraïbe); Hours: 80

Other courses

- 09.2020 Introduction to data science in python
University of Michigan (Online-Coursera); Hours: 30
- 02.2016 Nanochemistry
Universidad del Quindío, Colombia; Hours: 80
- 04.2015 Introduction to the density functional theory - DFT
Universidad del Quindío, Colombia; Hours: 20
- 02.2015– Advanced spectroscopy methods
- 06.2015 *Universidad del Quindío, Colombia*; Hours: 80
- 02.2015– Computational chemistry
- 06.2015 *Universidad del Quindío, Colombia*; Hours: 80

Internships

- 08.2022– Instituto Interdisciplinario de las Ciencias, Universidad Nacional de Cuyo, Mendoza, Argentina
- 09.2022 Supervisor: Dr. Vanesa V. Galassi

Fellowships and Rewards

- 2023 IUPAB bursaries to attend international conferences: “Physics of Life 2023”. International Union for Pure and Applied Biophysics (IUPAB); Harrogate, Yorkshire, UK
- 2022 IUPAB bursaries to attend international conferences: “L Annual Meeting of the Argentinian Biophysical Society - SAB”. International Union for Pure and Applied Biophysics (IUPAB); Rosario, Argentina
- 2021–2024 End of PhD Fellowships. National Scientific and Technical Research Council - CONICET; Argentina
- 2020–2023 Scholarship-Loan COLFUTURO. National Colombian Government; Colombia

- 2018–2021 Beginning PhD Fellowship. National Fund for Science and Technology - FONCyT; Argentina
- 2017 Meritorious mention for the degree work: “Some Structural, Electronic and Vibrational Properties of Phosphine Diphenyl[2-(2-Pyridylaminomethyl)-Phenyl] Oxide. A Quantum Chemical Study”. Facultad de Ciencias Básicas y Tecnologías, Universidad del Quindío; Colombia

Congress and Conferences

- 11.2023 Congress: *LI Annual Meeting of the Argentinian Biophysical Society - SAB*
Attendance; Córdoba, Argentina
- 11.2023 Meeting: *VII Meeting of Jóvenes Biofísicos: The Young Initiative on Biophysics - YIB*
Member of the organizing committee; Córdoba, Argentina
- 03.2023 Conference: *Physics of Life 2023*
Poster; Harrogate, Yorkshire UK
- 11.2022 Congress: *L Annual Meeting of the Argentinian Biophysical Society - SAB*
Attendance; Rosario, Argentina
- 11.2022 Meeting: *VI Meeting of Jóvenes Biofísicos: The Young Initiative on Biophysics - YIB*
Member of the organizing committee; Rosario, Argentina
- 12.2021 Congress: *IL Annual Meeting of the Argentinian Biophysical Society - SAB (Virtual)*
Attendance; Argentina
- 11.2021 Meeting: *V Meeting of Jóvenes Biofísicos: The Young Initiative on Biophysics - YIB (Virtual)*
Member of the organizing committee; Argentina
- 12.2018 Congress: *XLVII Annual Meeting of the Argentinian Biophysical Society - SAB*
Poster; La Plata, Argentina

Science Communication

- 10.2020 Social media: *YIB-TALKS (YouTube YIB). IUPAB Sponsorship*
Member of the organizing committee; Argentina
- 07.2019 Science Fair: *International Year of the Periodic Table*
Poster; Córdoba, Argentina
- 05.2019 Science Fair: *Biophysic Week*
Poster; Córdoba, Argentina

Skills and Abilities

Methodologies

Protein expression and purification	Bacterial transformation, plasmid extraction, bacteria lysis, production of recombinant proteins and peptides.
Biophysics	Preparation of multilamellar vesicles (MLV's) and unilamellar vesicles (SUV's)

Techniques

Chromatography: ÄKTA FPLC, size exclusion, HPLC, SDS-PAGE electrophoresis

Biophysics: Brewster angle microscopy (BAM), differential scanning calorimetry (DSC); Langmuir monolayers, time-correlated single photon counting (TCSPC); dynamic light scattering (DLS); fluorescence, UV-Vis and ATR-FTIR spectroscopy, silver protein staining

Software and Tools Skills

Scripting Python, Bash, Pandas, Numpy, Matplotlib, Scikit-learn, TensorFlow, JupyterLab, Google Colab, Conda

Molecular Dynamic Simulation Gromacs, Visual Molecular Dynamic (VMD), CHARMM-GUI, MDAnalysis, Gaussian 16, NBO 6.0

Others \LaTeX , Linux, Windows OS, GitHub, Fiji, Inkscape, GIMP, Microsoft Office: Word, Excel, PowerPoint

Miscellaneous

Membership Scientific Society

2020–2023 [Jóvenes Biofísicos: The Young Initiative on Biophysics - YIB](#)

2018–2024 [Argentinian Biophysical Society - SAB](#)

Student Project Supervision

Undergraduate Research Assistantship (URA) undergraduates work about 6-8 hours/week for a term on a research project.

06.2023–12.2023 Alexander García. *Molecular Dynamic Simulation: Transmembrane Proteins*. URA student. Universidad Nacional de Córdoba, Argentina

Languages

Spanish: native English: PTE Academic UKVI

Hobbies

Sport: Running, Hiking

Art: Wildlife photography

Mix: Travel, personal finance, multimedia editing

References

- Dr. Guillermo Montich PhD supervisor. Email: guillermo.montich@unc.edu.ar Phone: +54 9351 383 9235
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Av. Haya de la Torre, 5000; Córdoba Capital-Córdoba, Argentina
- Dr. Maricio Galiano Researcher. Email: mauricio.galiano@unc.edu.ar Phone: +54 9351 802 4397
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- Dr. Alberto Sánchez López Undergraduate supervisor. Email: asanchezl@uniquindio.edu.co Phone: +54 9351 802 8691
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