

Carlos Andrés Rodallega Millán

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Undergraduated Physics Student, Physics Department, Universidad del Valle.

📍 760032 Cali, Colombia

EDUCATION

- **Undergrad senior in Physics** 📍 Cali, Valle del Cauca, Colombia
Bachelor of Science in Physics - Universidad del Valle; GPA: 4.26/5 Feb. 2020 - Ongoing
- **High School** 📍 Santander de Quilichao, Cauca, Colombia
Institución Educativa Instituto Técnico; GPA: 4.7/5 Jan. 2014 - Nov. 2019

RESEARCH EXPERIENCE

- **Research internship - Solid State Theoretical Physics research group** 📍 Cali, Colombia
Supervisors: Dr. rer. Nat. Karem Rodríguez Ramírez. 🔗 Jun 2023 - Ongoing
 - **Research, review and study:** Literature about solid state physics, second quantization formalism on many-body systems, bosonization techniques and principles of condensed matter physics.
 - **General work structure:** Weekly meetings of discussion, developing basis of quantum theory and simulations.
 - **Research project:** study the formalism of coherent spin states and quadrupolar states associated to some specific spin-one systems and the Bose-Hubbard model.
- **Research Seedbed - International Physicists' Tournament** 📍 Cali, Colombia
Supervisors: Dr. rer. Nat. Karem Rodríguez Ramírez. 🔗 & Ph.D. Omar Calderón Losada 🔗 Jul 2023 - Ongoing
 - **Training:** understanding the competition rules, the three competition roles (presenter, opponent, and moderator), and communication skills training.
 - **Study and Development:** Mathematical models, as well as computational, experimental, and analytical tools
 - **General work structure:** Weekly meeting of discussion, currently working, in a collaborative environment, on the IPT 2024 problems
 - **Research project:** Participate and win the national tournament 2024.

RELEVANT COURSEWORK/SKILL AND SEMINARS

- **Undergraduate Core Courses** 📍 Cali, Colombia
Universidad del Valle Feb. 2020 - Jul 2023
 - Advanced Calculus, Fundametal Physics I-IV, Physics Lab I-VII, Chemistry I-II, Linear Algebra, Differential Equations, Computer Science, Digital Electronics I, Mathematical Physics I-II, Classical Mechanics, Quantum Mechanics I-II, Classical & Quantum Statistical Mechanics, Electromagnetic Theory I-II, Solid State Theory.
- **Advanced Courses** Universidad del Valle Feb. 2020 - Ongoing.
 - Nuclear Physics (semester-long course).
 - Introduction to Mossbauer Spectroscopy (semester-long course).
 - Quantum Simulators (semester-long course).
 - Theory of Magnetism (semester-long course).
 - Quantum Field Theory (semester-long course).
- **Certified Scool's & Seminars** Universidad del Valle & Others. Feb. 2020 - Ongoing.
 - Solid State Theoretical Physics Seminar. (Attended)
 - QuanTIC Seminar. (Attended)
 - Qiskit Fall Fest - Spanish School of Quantum Computing. (Remote)
 - Materials Characterization Techniques-Workshop.

AREAS OF INTEREST

- Condensed Matter & Quantum Dynamics.
- Quantum Magnetism and Phase transitions.
- Quantum simulators & Quantum Computing.
- Quantum Field Theory.

COMPUTATIONAL SKILLS

Languages: C++ and Python.

Operating systems: Windows, Linux (Ubuntu).

Software: Mathematica, Matlab, Gnuplot, COMSOL, LaTeX, Microsoft Office.

LANGUAGES

	Speaks	Writes	Reads	Understands
Spanish	Excellent	Excellent	Excellent	Excellent
English	Good	Excellent	Excellent	Excellent

HONORS AND AWARDS

- **Finalist in a national Mathematics Olympiad at the Universidad del Valle.** 2017
Recognition for students who passed prior Olimpiad competitions and became finalists. 📍 Cali, Colombia
- **Finalist in a national Mathematics Olympiad at the Universidad del Valle.** 2018
Recognition for students who passed prior Olympiad competitions and became finalists. 📍 Cali, Colombia.
- **Winner of a regional mathematics olympiads.** 2018
Recognition for winning a regional mathematics olympiad. 📍 Stder de Quilichao, Cauca.
- **Winner of an 'Andrés Bello' award for performance in the national exam.** 2019
The 'Andrés Bello' award is given to the top-performing students in the national exam (ICFES). 📍 Colombia
- **5th place, Academic Stimulus in Physics (Universidad del Valle)** 2021-II
Recognition to the five best GPA's of the semester. 📍 Cali, Colombia
- **4th place, Academic Stimulus in Physics (Universidad del Valle)** 2022-I
Recognition to the five best GPA's of the semester. 📍 Cali, Colombia
- **3rd place, Academic Stimulus in Physics (Universidad del Valle)** 2022-II
Recognition to the five best GPA's of the semester. 📍 Cali, Colombia
- **First place, National Qualifiers IPT International Physicist's Tournament** 2023
Recognition to the five best GPA's of the semester. 📍 Cali, Colombia

CERTIFIC ONLINE-SHORT COURSES

- **Basic Algebra** [↗](#). 🖥 Remote - Coursera
25 hours - Universidad Nacional Autónoma de México Jan 2020
- **Calculus I** [↗](#), **II** [↗](#), **III** [↗](#) and **IV** [↗](#). 🖥 Remote - Coursera
60 hours - Tecnológico de Monterrey Feb 2020
- **Microscopic Characterization Techniques** [↗](#). 🖥 Remote - Coursera
8 hours - Universitat de Barcelona Feb 2020
- **Nuclear Reactor Physics Basics.** [↗](#). 🖥 Remote - Coursera
16 hours - Moscow Inst of Engineering Physics of the National Research Nuclear University Jul 2020
- **How Things Work: An Introduction to Physics.** [↗](#). 🖥 Remote - Coursera
14 hours - University of Virginia Jul 2020

NON-CERTIFIED ONLINE LONG COURSES(ASSITANT)

- **Statistical mechanics** [↗](#) ▶ Remote - Youtube Clases
60 hours - Instituto Balseiro Académico. Jan 2022- Jun 2022
- **Classical Mechanics** [↗](#) ▶ Remote - Youtube Clases
40 hours - Instituto Balseiro Académico. Jul 2022 - Dec 2022
- **Theoretical Mechanics Course** [↗](#) ▶ Remote - Youtube Clases
100 hours - Javier Garcia course. Jan 2022 - Jun 2022
- **Lie Groups** [↗](#) ▶ Remote - Youtube Clases
20 hours - Javier Garcia course. Jul 2022 - Dec 2022
- **General Relativity Course.** [↗](#) ▶ Remote - Youtube Clases
120 hours - Javier Garcia course. Jan 2023 - Ongoing
- **Course in Quantum Field Theory** [↗](#) ▶ Remote - Youtube Clases
170 hours - Javier Garcia course. Jan 2023 - Ongoing

TEACHING EXPERIENCE

- **University tutor (20 hours per week)** 📍 Stder de Quilichao, Cauca.
Universidad del Valle , Norte del Cauca branch. Feb. 2021 - Jul 2021
 - Tutoring help for undergraduate students in fundamental mathematics, calculus, linear algebra and differential equations.
- **University tutor and socioeducational support (10 hours per week)** 📍 Cali, Colombia
Department of physics - Universidad del Valle Feb. 2022 - Dec 2022
 - I provided tutoring assistance for undergraduate students in fundamental mathematics, calculus, linear algebra, and differential equations while also offering socioeducational support.
- **Private Tutor** 📍 Cali, Colombia
Self-employed job Feb. 2020 - Ongoing
 - Individual or group personalized lessons for undergraduate students, middle school and high school students. Mainly taught subjects related to math and physics.

REFERRES

- **Dr. rer. Nat. Karem Rodríguez Ramírez.** [↗](#) 📍 Cali, Colombia
Thesis Supervisor.

MY MOTTO

- "Education is not the learning of many facts, but the training of the mind to think"
Albert Einstein.