

Iván Mauricio Burbano Aldana

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About me

Born on December 26, 1996 in Bucaramanga, Colombia, I've always been characterized by my strong passions. My first discoveries on symmetry through music laid the basis for my passion to understand what surrounds us. Physics has offered me a path through which I can explore the world making use of my creativity. At this point in my life I've decided to take advantage of every chance I get along the way to learn new things, meet new people, and become a better person. I am certain that the success of this enterprise will be guaranteed by the discipline and commitment I give to my work.

Special Skills

Theoretical Physics: KMS states, information theory, algebraic quantum field theory, global methods in general relativity, and geometric, algebraic, and topological methods in physics.

Mathematics: Algebra, Topology, Analysis, Measure Theory, Algebraic Topology, and Tomita-Takesaki Theory

Programming: Unix/Linux, Java, Python, and C

Experimental Physics: Infrared sensors and electrochemically exfoliated graphene.

Languages: Spanish and English (*TOEFL* 113/120). Three semesters of german studies.

Education

Physics Master

Universidad de los Andes

Expected: December 2019

Physics Major

Cum Laude

Universidad de los Andes, Bogotá, Colombia

Mathematics Minor

Thesis: KMS States and Tomita-Takesaki Theory

March 2018

Average: 4.72/5

Highschool degree: Academic Bachelor

San Carlos School, Bogotá, Colombia

June 2014

Awards

- *Cum Laude* for graduating with a GPA in the best 3% of the science faculty in the past 5 years.
- *Semiannual Excellence Prize* for the best grades on the first semester of 2017 of the Physics department at the Universidad de los Andes.
- *Ramón de Zubiría Prize* for the best global grades up to the first semester of 2016 of the Physics department at the Universidad de los Andes.
- *Semiannual Excellence Prize* for the best grades on the second semester of 2015 of the Physics department at the Universidad de los Andes.

- *Honorable mention* in the 45th International Physics Olympiad (Kazakhstan 2014).
- *Third place* in the Colombian Physics Olympiad of 2013.

Experience

SURF California Institute of Technology: I worked under the supervision of Dr. Roger Smith and Dr. Andrés Plazas during the summer of 2017. I aided the investigation, characterization, and correction of image centroid motions at the Precision Projector Laboratory in the Jet Propulsion Laboratory (NASA). The detectors investigated will be used for the study of weak gravitational lenses and dark matter in missions such as WFIRST and Euclid.

Teacher at the Universidad de los Andes:

- Physics 1 recitation in the first semester of 2018.
- Basic Physics 1 recitation in the first semester of 2018.

Teaching assistant at the Universidad de los Andes:

- Lineal Algebra 2 with professor César Galindo in the second semester of 2016.
- Physics clinic in the second semester of 2016.
- Linear Algebra (Honors) with professor Sergio Adarve in the first semester of 2016.

Nanomaterials Laboratory: during the second semester of 2016 I researched the actuating properties of electrochemically exfoliated graphene under the supervision of professor Yenny Hernández as part of the Intermediate Lab course.

Tutor: I have helped students of Physics 1, Physics 2, Integral Calculus, Vector Calculus, Linear Algebra 2, and Mathematical Methods.

Seminars

Topological Order and Beyond: KMS States and Tomita-Takesaki Theory
Universidad de los Andes, Bogotá, Colombia
May 2018 (already confirmed)

Quantum Field Theory and Mathematical Physics Seminar: Algebraic framework for classical and quantum physics through C^* -algebras.
Universidad de los Andes, Bogotá, Colombia
February 2018

Quantum Field Theory and Mathematical Physics Seminar: Orthocomplemented Quantum Lattices of Propositions.
Universidad de los Andes, Bogotá, Colombia
April 2017

La Cicuta Magazine 7th edition release: On the Communication and Censorship of Science.
Universidad de los Andes, Bogotá, Colombia
September 2017

Seminars Attended

Topological Order and Beyond
Universidad de los Andes, Bogotá, Colombia
May 2018

Dynamics of Quantum Systems Outside of Equilibrium
Universidad de los Andes, Bogotá, Colombia
December 2017

URDiplomats workshop
Universidad del Rosario, Bogotá, Colombia
April 2014

Extracurricular Activities

- Tutoring at the Iglesia de Nuestra Señora de las Aguas for the state exam. This was targeted at low income teenagers of La Candelaria neighborhood.
- Guitar classes targeted at low income teenagers. This was part of my social service at high school.
- Elected president of the student council at Colegio San Carlos during my senior year.
- I teamed up with the United Nations Information Center to design the first UN model at a citywide scale SIMONU 2013. I also acted as the Secretary General of the UN model of my school SACMUN X and performed as president and delegate of various other models in Bogotá.

References

- Prof. Andrés Fernando Reyes Lega: anreyes@uniandes.edu.co
- Dr. Roger Smith: rsmith@astro.caltech.edu
- Dr. Andrés Plazas: andres.a.plazas.malagon@jpl.nasa.gov
- Prof. Carlos Andrés Flórez Bustos: ca.florez@uniandes.edu.co
- Prof. Sergio Adarve: sadarve@uniandes.edu.co
- Prof. César Neyit Galindo Martínez: cn.galindo1116@uniandes.edu.co