

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	<p><i>Theoretical Physics:</i> Geometric, algebraic, and topological methods in physics.</p> <p><i>Mathematics:</i> Algebra, Topology, Analysis, Measure Theory, and Algebraic Topology.</p> <p><i>Programming:</i> Unix/Linux, Java, Python, C, IRIS, and DS9.</p> <p><i>Experimental Physics:</i> Infrared sensors and electrochemically exfoliated graphene.</p> <p><i>Languages:</i> Spanish and English (<i>TOEFL</i> 113/120). Three semesters of german studies.</p>
Education	<p><i>Physics Master</i> Instituto de Física Teórica, Universidade Estadual Paulista "Júlio de Mesquita Filho" In progress</p> <p><i>Physics Master</i> Universidad de los Andes, Bogotá, Colombia Not completed</p> <p><i>Physics Major</i> Universidad de los Andes, Bogotá, Colombia Cum Laude Mathematics Minor Thesis: KMS States and Tomita-Takesaki Theory March 2018 Average: 4.72/5</p> <p><i>Highschool degree: Academic Bachelor</i> San Carlos School, Bogotá, Colombia June 2014</p>
Awards	<ul style="list-style-type: none">• <i>IFT/SAIFR-Perimeter Fellowship</i> for obtaining one of the highest scores in the 2018 Journeys for Theoretical Physics exam.• <i>Cum Laude Undergraduate Degree</i> for graduating with grades amongst the top 3% of the past five years of the science faculty at the Universidad de los Andes.• <i>Semiannual Excellence Prize</i> for the best grades on the first semester of 2017 of the Physics department at the Universidad de los Andes.• <i>Ramón de Zubiría Prize</i> 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 2 recitation in the second semester of 2018.
- Experimental Physics 1 in the second semester of 2018.
- 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.

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

Seminars

4th Joint Dutch-Brazil School on Theoretical Physics: Emerging Gauge Symmetries and Quantum Operations.

Instituto de Física Teórica UNESP, São Paulo, Brazil
February 2019

Noncommutative Geometry and Poisson Geometry Around Groupoids School and Conference: Applications of Tomita-Takesaki Theory to Quantum Physics I.

Villa de Leyva, Colombia
July 2018

Quantum Optics Seminar: Quantum Logic and the Orthocomplemented Lattice of Propositions: A logic based approach to Bell's inequalities.

Universidad de los Andes, Bogotá, Colombia
June 2018

<https://opticacuantica.uniandes.edu.co/index.php/es/eventos/historico-de-seminarios>

Topological Order and Beyond: KMS States and Tomita-Takesaki Theory.

Universidad de los Andes, Bogotá, Colombia
June 2018

https://matematicas.uniandes.edu.co/~cursillo_gr/escuela2018/abstracts.php#abstract_burbano

Quantum Field Theory and Mathematical Physics Seminar: Algebraic Formulation of Quantum Physics.
 Universidad de los Andes, Bogotá, Colombia
 February 2018

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

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

Seminars Attended

4th Joint Dutch-Brazil School on Theoretical Physics
 São Paulo, Brazil
 February 2019

Random Physical Systems
 Puerto Natales, Chile
 December 2018

Journeys into Theoretical Physics
 IFT-Perimeter-Saifr
 Instituto de Física Teórica UNESP, São Paulo, Brasil
 July 2018

Noncommutative Geometry and Poisson Geometry Around Groupoids School and Conference
 Villa de Leyva, Colombia July 2018

Topological Order and Beyond
 Universidad de los Andes, Bogotá, Colombia
 June 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 student president 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