

Federico Serrano Morales

Ph.D. Candidate—Physics

PERSONAL

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EDUCATION

Ph.D. Physics Washington State University
Present—Pullman, WA
Advisor: Prof. Qingze Guan

M.Sc. Physics National University of Colombia
May, 2020—Bogotá, Colombia
GPA 4.8/5.0
Thesis: Matching Between EFT of Inflation and Pure de Sitter SUGRA

B.Sc. Honors Physics National University of Colombia
March, 2017—Bogotá, Colombia
GPA 4.2/5.0
Thesis: Power Spectrum for Inflationary Models using the In-In Formalism

RESEARCH

Summer school on geometry and theoretical physics Andes University
July, 2019—Villa de Leyva, Colombia
Research in mathematics, physics and algebraic methods leading to quantization.
Talk—Non Linear Realization of Supergravity.

II Workshop on current challenges in cosmology Antonio Nariño University
November, 2018—Bogotá, Colombia
Study several topics related with large scale structure (LSS) formation both from a theoretical and an observational point of view.
Short Talk— Matching Between Supersymmetric EFT of Inflation and Constrained Superfields.

Summer school on cosmology 2018 International Center Theoretical Physics (ICTP)
June-July, 2018—Trieste, Italy
Introduction to the current state of research in cosmology and astroparticle physics.
Poster—Inflation with Dark Matter: How Probable is Our Universe.

Research Internship Cornell University
January-July, 2016—Ithaca, NY
Research project advised by Prof. Liam McAllister on planckian inflation using random matrix theory.
Project—Inflation with Subplanckian Axions Using Random Matrix Theory.

Summer school on geometric, algebraic and topological methods for QFT Andes University
July, 2015—Villa de Leyva, Colombia
Borderline between geometry, topology and algebra in quantum field theory.

TEACHING

National Selection for the International Physicist Tournament (IPT)	<p>IPT Colombia executive committee November, 2018-present—Bogotá, Colombia Organize every year a national competition following the IPT rules and inviting the most relevant physics departments of Colombia. The aim of the event is to select the national team that will represent the country during the international tournament. Position—President</p>
Graduate teaching assistant	<p>Washington State University August, 2021-Present—Pullman, Washington Assistant in the Astronomy lab.</p> <p>National University of Colombia January, 2018-September, 2019—Bogotá, Colombia Professor assistant in theoretical physics.</p>
Astronomy olympiads	<p>Antonio Nariño University December, 2016-December, 2019—Bogotá, Colombia Professor in cosmology for advanced high school students giving specialized training for the IOAA.</p>
Tutor	<p>Smart Learning educational group August, 2011-December, 2013—Bogotá, Colombia Personal monitor in Mathematics and Science for high school students.</p>

WORK

Financial Consultant	<p>Management Solutions SAS August, 2020-present—Houston, TX February-July, 2020—Sao Paulo, Brazil September-January, 2019—Bogotá, Colombia Analyze and describe financial outcomes to create predictive models for several financial entities.</p>
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AWARDS

Fulbright	<p>Fulbright/Minciencias August, 2020—Bogotá, Colombia Grant to pursue a doctoral program in the United States.</p>
Nexo Global	<p>COLCIENCIAS January, 2016—Bogotá, Colombia Grant for a research internship at Cornell University, NY</p>
PEAMA-Best Bachelors	<p>National University of Colombia August, 2011—Bogotá, Colombia Scholarship for undergraduate studies.</p>

SKILLS

Language	<p>English — TOEFL: 102/120 Italian — Maturità: 87/100 Spanish — Native</p>
Software	<p>C++ / Python / Mathematica / LaTeX / SAS / SQL</p>
Interests	<p>Cold atoms / Numerical methods / Complex networks / Stochastic processes / QFT / Quantum gravity / Biophysics / Differential geometry / Origami / String Theory / Epistemology / Chess</p>