



## Sebastián Alfonso Bahamondes Naranjo

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Birth date: September 15th, 1998.

Nationality: Chilean

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### Summary

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B.Sc in Math, B.Sc in Physics; currently theoretical physics M.Sc student at Pontificia Universidad Católica de Chile (PUC). Leadership, analysis capability and use of computational tools for simulation of different physical systems. Interested in joining projects and/or internships with researchers and academics from different fields related to Holography, Condensed Matter, and various types of computational simulations. Also interested in the use of different programming languages for research in physics (Python, Fortran, Mathematica, Julia, etc...)

### Education

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2019-2022	Bachelor's degree in Mathematics <b>P. Universidad Católica de Chile, Santiago, Chile</b>
2017-2022	Bachelor's degree in Physics <b>P. Universidad Católica de Chile, Santiago, Chile</b>
2005-2016	Middle and high school <b>Colegio Calasanz, Santiago, Chile</b>
2022 to date	M.Sc degree in Theoretical Physics <b>P. Universidad Católica de Chile, Santiago, Chile</b> <b>Expected to graduate on August 2024</b>

### Specific knowledge and competences

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Computational physics programming capabilities in Fortran and Python languages, with special abilities in Molecular Dynamics.

Background in Quantum Mechanics, Statistical Mechanics, Mathematical Physics and General Relativity, among other subjects such as Holography (AdS/CFT correspondence) and its applications to condensed matter systems (superconductivity). Specific ability to use Wolfram

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Mathematica for the study of condensed matter systems (physics bachelor's dissertation on holographic superconductivity).

### Research projects

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- Summer internship at PUC Faculty of Physics under direction of Rafael Benguria PhD, Chaos Theory and Hidden Symmetries in Quantum Mechanics (2019).
- Scientific Initiation program at PUC Faculty of Mathematics under direction of Godofredo Iommi PhD, Ergodic Theory Applied to Number Theory (2019).
- Summer internship at PUC Faculty of Mathematics under direction of Godofredo Iommi PhD, Thermodynamic Formalism in Ergodic Theory (2021).
- Physics bachelor's dissertation at PUC Faculty of Physics under direction of Rodrigo Soto PhD, Holographic duality in Condensed Matter Physics: Holographic Superconductivity.
- M.Sc research association at [HolographyCL](#) research group, Holographic modeling of a Weyl semimetal (2022-to date)

### Teaching Assistant at PUC

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- Vector Calculus (MAT1630), 2018
- Analytical Mechanics (FIZ0222), 2019
- Topics on Mathematical Physics (FIZ1428), 2020
- Statistical Mechanics (FIZ0411), 2021 and 2022
- Quantum Physics (FIZ0322), 2021

### Extracurricular projects

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- Vice-academic counselor at PUC undergrad physics bachelor (2019).
- 2017 physics undergrad cohort representative at PUC students' federation (2020).
- Physics, astronomy, mathematics and statistics undergrad Student Counselor at PUC students' federation (2021).
- Tech assistant at the interim Superior Counselor work team (2020).
- PUC inter-faculty orchestra violin player (2018-2020).

### Languages

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Spanish (native speaker), English (full command), Italian (B2 level)

### Achievements

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- 2017, 2018 and 2019 physics undergrad valedictorian of the 2017 student cohort.

**February, 2023**

