

## EDUCATION

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### University of Chicago

Ph.D. Student

IL, USA

2022–present

### Pontificia Universidad Católica de Chile

B.S. in Astronomy. Graduation Rank 1 out of 9, Accumulated Average: 6.43/7.00

Santiago, Chile

2017–2021

- Thesis: “Assembling Super-Earths by Giant Impacts in Protoplanetary Disks”

## RESEARCH EXPERIENCE

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### Undergraduate Researcher

2021 - 2022

Instability Timescales of Planetary Systems

- I carried out N-body simulations in order to study the stability of planetary systems when damping forces are included. This allowed me to gauge the primordial disk properties when planets grew by collisions using the exoplanet demographics. I also developed a semi-analytical framework based on orbital resonances in order to understand the simulation outcomes. Paper in writing-stage to be submitted to the AAS Journals.

### Undergraduate Researcher

Summer 2020

Density Distribution Models at an Astronomic Scale: Lane Embden Equation

- I studied the Lane-Emden equation from a Mathematical Physics point of view, reviewing its derivation, mathematical characteristics and physical implications, along with its analytical and numerical solutions through the Newton-Raphson Method.

## SCHOLARSHIPS AND AWARDS

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- Honors Award 2017–2020
  - Awarded to students with the best academic performance of their class on the previous academic year (Cohort of 43)
- National Maximum Score at University Selection Exam of Mathematics (PSU) 2016

## CONFERENCES

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- Contributed talk at XVII SOCHIAS Anual Meeting January 2022
  - Title: “*Influence of Protoplanetary Disks and Orbital Resonances on the Formation of Super Earths via Giant Impacts*”

## TEACHING

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### Teaching Assistantships at Pontificia Universidad Católica de Chile

- Dynamics of Stellar and Planetary Systems (Graduate Level Course) 2021 - 2
- Methods of Mathematical Physics II 2021 - 1, 2022 - 1
- Quantum Physics II 2021 - 1
- Dynamics Laboratory Summer 2021
- Quantum Physics I 2020 - 2
- Dynamics Laboratory 2019 - 2

## COMPUTER SKILLS

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- **Programming:** Python
- **OS:** Mac OS
- **Others:** L<sup>A</sup>T<sub>E</sub>X, Vim

## LANGUAGES

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- **Spanish:** Native
- **English:** Advanced
  - Sept. 2021: **TOEFL iBT:** 114/120

## EXTRACURRICULAR ACTIVITIES

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- Volunteer Academic Tutor 2020-2021  
*School accompaniment for a 5th grade student on the autistic spectrum*
- Member of the Astronomy Academic Counseling Team 2020  
*Part of the faculty organism dedicated to attend academic issues regarding astronomy undergraduate students*
- Counselor at “Applicant’s week UC” 2019  
*This fair is dedicated to students seeking to apply to an undergraduate program at Pontificia Universidad Católica de Chile*
- Counselor at “Future UC Freshman Expo” 2018  
*This Expo is dedicated to high school students that want to know more about the undergraduate programs at Pontificia Universidad Católica de Chile*
- Karate Brown Belt 2011-2018  
*Brown Belt in Goju-ryu Karate-Do, obtained at OGKK Yuetsu Chile*
- Mathematics Tutor 2017  
*Tutoring high school students preparing their University Selection Exam of Mathematics*