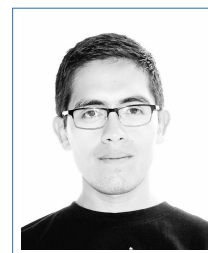


# Anibal Sierra

## Curriculum Vitae

Departamento de Astronomía  
Facultad de Ciencias  
Físicas y Matemáticas  
Universidad de Chile  
✉ [asierra@das.uchile.cl](mailto:asierra@das.uchile.cl)  
📄 [anibalsierram.github.io](https://anibalsierram.github.io)



### Personal Information

Name: Anibal Estuardo Sierra Morales

Birth: September 16th, 1989; Guatemala City, Guatemala

### Education

- 2022–to date **Postdoctoral researcher in Astrophysics**, *AGENCIA NACIONAL DE INVESTIGACIÓN Y DESARROLLO - FONDECYT POSDOCTORADO*, Santiago, Chile.  
Advisor: Dr. Laura Pérez
- 2020–2022 **Postdoctoral researcher in Astrophysics**, *FACULTAD DE CIENCIAS FÍSICAS Y MATEMÁTICAS, DEPARTAMENTO DE ASTRONOMÍA, UNIVERSIDAD DE CHILE*, Santiago, Chile.  
Advisor: Dr. Laura Pérez
- 2016–2019 **PhD in Astrophysics**, *INSTITUTO DE RADIOASTRONOMÍA Y ASTROFÍSICA (IRYA), UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO*, Morelia, Michoacán, México, Thesis: Dust dynamics and emission in protoplanetary disks.  
Advisor: Dr. Susana Lizano
- 2014–2015 **Master in Astrophysics**, *INSTITUTO DE RADIOASTRONOMÍA Y ASTROFÍSICA (IRYA), UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO*, Morelia, Michoacán, México, Thesis: Dust dynamics in protoplanetary disks.  
Advisor: Dr. Susana Lizano
- 2008–2013 **Bachelor in Physics**, *UNIVERSIDAD DE SAN CARLOS DE GUATEMALA*, Guatemala City, Guatemala, Thesis: Group representation in physics.  
Advisor: Ing. Rodolfo Samayoa

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## Interests and Research

I study protoplanetary disks (dust and gas properties) from a theoretical point of view (analytical models, simulations) and from observations (millimeter interferometric data with ALMA and VLA). I am specially interested in disks with vortices, spiral arms, and/or rings structures, where dust grains can be trapped and grow. My work has focused on the study of dust opacity properties and dust continuum emission, in particular, I have studied radiative transfer models where scattering is taken into account. From these analysis, the dust surface density, temperature, and the size of the dust grains can be determined from multi-wavelength observations. Once the dust properties are determined, analytical models and simulations are used to explain the inferred structures.

See full list of refereed publications: [ADS NASA](#).

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## Positions

2020-2021 **Secretary**, *ASTROFÍSICA CENTROAMERICANA Y DEL CARIBE (Alpha-Cen)*, Central America and Caribbean.

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## Teaching Experience

2020 **Professor**, *UNIVERSIDAD DE CHILE*, Faculty of Physics and Mathematics, Santiago de Chile.  
General astronomy.

2019 **Teaching assistant**, *UNIVERSIDAD AUTÓNOMA DE MÉXICO*, Morelia, Michoacán.  
Distributed computing.

2018 **Teaching assistant**, *UNIVERSIDAD AUTÓNOMA DE MÉXICO*, Morelia, Michoacán.  
Image analysis using Python.

2013 **Teaching assistant**, *UNIVERSIDAD FRANCISCO MARROQUÍN*, Guatemala city.  
Calculus, linear algebra.

2011–2013 **Physics laboratory teacher**, *UNIVERSIDAD DE SAN CARLOS DE GUATEMALA*, Guatemala city.  
Classical mechanics, electromagnetism, optics, and quantum mechanics.

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## Awards and Recognitions

2021 **PhD thesis award** – Best PhD thesis done in Mexico or by mexicans abroad (period 2020-21) – División de Astrofísica de la Sociedad Mexicana de Física

2020 **Honorific mention** – PhD in Astrophysics – IRyA UNAM

2019 **Alfonso Caso Medal** – Best student of the generation, Master in Astrophysics – Universidad Nacional Autónoma de México

2015 **Honorific mention** – Master in Astrophysics – IRyA UNAM

2013 **Cum Laude** – Bachelor in Physics – Universidad de San Carlos de Guatemala

2012 **University student excellence award** – Best student of the generation – Universidad de San Carlos de Guatemala

2009–2012 **Student excellence award** – Best physics student of the year – Universidad de San Carlos de Guatemala

2010 **IV Basic sciences olympiad** – First place – Physics

- 2009 **III Basic sciences olympiad** – Fourth place – Mathematics
- 2007 **High school excellence award** – Best student of the generation – Colegio San José de los Infantes

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## Grants

- 2016 **CONACYT - OEI**: Grant from the Organization of Ibero-American States
- 2016 **CONACYT - OEA - AMEXCID**: Grant from the Organization of the American States (PhD)
- 2016 **CONACYT**: Scholarship for PhD's studies
- 2014 **CONACYT - OEA - AMEXCID**: Grant from the Organization of the American States (Master)
- 2014 **CONACYT**: Scholarship for Master's studies
- 2012 **USAC**: Grant for bachelor studies

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## References

1. Dra. Laura Pérez Muñoz. Departamento de Astronomía, Universidad de Chile. e-mail: lperez@das.uchile.cl
2. Dra. Estela Susana Lizano Soberón. Instituto de Radioastronomía y Astrofísica, UNAM Campus Morelia. e-mail: s.lizano@irya.unam.mx
3. Dr. Carlos Carrasco González. Instituto de Radioastronomía y Astrofísica, UNAM Campus Morelia. e-mail: c.carrasco@irya.unam.mx