

# Dr. Carolina Agurto Gangas

🌐 [cagurto.github.io](https://cagurto.github.io)

✉ [cagurto@das.uchile.cl](mailto:cagurto@das.uchile.cl)

📱 [cagurto](#)

☎ +56 988044668

## About me

I am a Doctor of Astronomy from the University of Munich (LMU). My areas of interest are young protoplanetary disks, dust properties, radiative transfer models, interferometry and astrochemistry. I am currently a postdoctoral researcher at the Department of Astronomy at the University of Chile, funded by Comité Mixto ESO-Gobierno de Chile. During the past 10 years I've been involved in the dissemination of astronomy and I'm the co-founder of the Star Tres initiative. I am also the 1st Vice President (2023-2024) of the Chilean Astronomical Society (SOCHIAS).

## Education

**Ludwig-Maximilians-Universität München**

*Dr. rer. nat. in Astronomy*

**Munich, DE**  
Graduation: September 22nd, 2020

**Universidad de Valparaíso**

*MSc. in Astrophysics*

**Valparaíso, CL**  
Graduation: May 2015

**Universidad de Valparaíso**

*Licentiate in Physics with specialization in Astronomy, BSc degree*

**Valparaíso, CL**  
Graduation: December 2012

## Awards and Grants

**Comité Mixto ESO-Gobierno de Chile**

*Postdoctoral Position, PI: L. Pérez, Project: The Role of Gas and Solids in Young and Old Protoplanetary Disks: Insights from ALMA*

**April 2024-2026**

**FONDECYT Postdoctoral fellowship 2021 ANID (95K USD)**

*Understanding the dust properties and chemical diversity in Class I protostars. Nr 3210520*  
Top one project among 41 astronomy, cosmology and particles physics applicants

**2021-2024**

**Award 100 Mujeres Líderes**

*Selected as one of the 100 Women Leaders by Fundación Mujeres empresarias, El Mercurio & Universidad Adolfo Ibáñez*

**Dec 2021**

**IAU's Office of Astronomy for Development Grant (5K USD)**

*Asteroids workshop AVERO: A rocky adventure. PI: C. Agurto-Gangas, CoPIs: K. Rojas, J. Rey*

**2021**

**Award 100 Young Chilean Leaders**

*Selected as one of the 100 leaders under 35 by El Mercurio newspaper and Universidad Adolfo Ibáñez*

**Dec 2018**

**Scholarship for Doctorate programs abroad (81K USD)**

*Becas Chile, CONICYT Nr. 5594/2015*

**2015-2019**

**Grants for the Astronomy Graduate Program of the Universidad de Valparaíso**

*Gemini-CONICYT Project Nr. 32110004*

**2014**

**Grants for the Master Astronomy Program at Universidad de Valparaíso**

*ALMA-CONICYT Project Nr. 31120015*

**2013**

## Observational experience

**ALMA Cycle 10 and 9: accepted and observed proposals**

- 2023.1.01106.S PI: Laura Perez. **Co-I: C. Agurto-Gangas**. Total time: 28.6h. An ALMA Band 1 and VLA survey to probe the solid reservoir of Lupus disks
- 2023.1.01100.S PI: Anibal Sierra. **Co-I: C. Agurto-Gangas**. Total time: 10.2h. Hunting two planet candidates from gas and dust signatures
- 2022.1.01743.S. **PI: C. Agurto-Gangas**. Total time: 10.8h. Searching for substructures in young protoplanetary disks.
- 2022.1.01221.S. PI: Laura Perez. **Co-I: C. Agurto-Gangas**. Total time: 12.7h. Investigating the wide variety of planet formation signatures in the HD 143006 system
- 2022.1.01216.S. PI: Anibal Sierra. **Co-I: C. Agurto-Gangas**. Total time: 11.5h. Dust traps in LkCa 15?

### Atacama Large Millimeter/submillimeter Array

ALMA Large Program 2021.1.00128.L AGE-PRO: the ALMA survey of Gas Evolution in PROtoplanetary disks.

Col & Data delegate: C. Agurto-Gangas. Total time: 103.4 h

ALMA, Antofagasta, CL

2021-2023

### NOrthern Extended Millimeter Array (NOEMA)

Project S16AT Grain growth in a Class I protoplanetary disk.

PI: C. Agurto-Gangas. Total time: 7.9h

IRAM, Grenoble, FR

29-01 Jun/Feb 2017

### Submillimeter Array (SMA)

Support astronomer on MASSES observing program 2014A-S093

Mauna Kea, HI

2-6 Jun 2016

### Paranal Observatory

Observing program on FORS

Antofagasta, CL

2-4 Jun 2015

- Period measurements of WDMS binaries on CVs period gap

### Observatorio Santa Martina UC

Be stars spectra campaign

Santiago, CL

23-27 Feb 2015

- Spectra for 40 Be stars using Pucheros, a high resolution Echelle spectrograph (R = 17000) mounted ESO telescope at 50cm.

### La Silla Observatory

Observing program on NTT-EFOSC2

La Serena, CL

23-30 Nov 2012

- Spectral study of binary systems (K-F-G dwarf) plus white dwarf star, radial velocity and period calculation.

### Cruz del Sur Observatory

Variable stars observation (CCDOps software)

Combarbalá, CL

25-30 Jan 2011

## Teaching experience

Universidad de Chile:

Jan.- Present **Departamento de Astronomía (DAS). Facultad de Ciencias Físicas y Matemáticas (FCFM),** Research tutor: Trabajo Tutorial Básico and curso de Proyecto Astronómico. *Student: José Mondaca.*

Universidad Santa María:

20.07.2022 **Departamento de Física. Docente invitada, Invited speaker in Course: Introduction to Interferometry and CASA Practical lecture.**

Universidad de Chile:

March 2022 **Departamento de Astronomía (DAS). Facultad de Ciencias Físicas y Matemáticas (FCFM),** Astronomy General Course: Mira hacia arriba: Cometas, asteroides y meteoritos... de verdad.

Jan. 2022 **Departamento de Astronomía (DAS). Facultad de Ciencias Físicas y Matemáticas (FCFM),** Research tutor: Trabajo Tutorial Básico. *Students: Camila Pulgares, Carolina Nuñez..*

Nov. 2021 **Departamento de Astronomía (DAS). Facultad de Ciencias Físicas y Matemáticas (FCFM),** Astronomy General Course: Se busca vida en el Sistema Solar: La odisea de la astronomía.

Universidad de Valparaíso:

2012 **First semester, Assistant professor in Physic I, B.S. in Mathematics Course.**

2012 **First semester, Assistant professor in Laboratory, Electromagnetism, Waves and Optics, B.S. in Astrophysics Course.**

2011 **First semester, Assistant professor in Physic I y Physic II, B.S. in Astrophysics Course.**

## Teaching specialization courses

2021-2022 **Dirección de Igualdad de Género: DIGEN-GA, Diplomado Género en la Academia: Desafíos para el cuerpo académico de la Universidad de Chile.**

April 2022 **Ministerio de desarrollo social y subsecretaría de la niñez , Curso: Diversidad e identidad de género Ley 21.210.**

## Publications and Proceedings

- Hints of planet formation signatures in a large-cavity disk studied in the AGE-PRO ALMA Large Program** 2024  
ApJ submitted (Revise)  
Sierra, A., Pérez, L.M., [Agurto-Gangas, C.](#) et. al.
- The AGE-PRO ALMA Survey: A glimpse into the gas evolution in protoplanetary disk** 2023  
RevMexAA Conference Series edition submitted  
[Agurto-Gangas, C.](#) et. al.
- Simple Disk Envelope (SiDE) fit framework** 2020  
Available in Zenodo  
[Agurto-Gangas, C.](#) and L. Szűcs.
- Revealing the dust grain size in the inner envelope of the Class I protostar Per-emb-50** 2019  
A&A Volume 623, A147  
[Agurto-Gangas, C.](#); Pineda, J. E.; Szűcs, L.; Testi, Tazzari, M., Miotello, A.; Caselli, P.; Dunham, M.; Stephens, I. W.; Bourke, T.
- Grain growth in Class I protostar Per-emb-50: a dust continuum analysis ...** 2017  
Proceeding, Memorie della Società Astronomica Italiana, v.88, p.761.  
[Agurto-Gangas, C.](#); Pineda, J. E.; Testi, L.; Caselli, P.; Szucs, L.; Tazzari, M.; Dunham, M.; Stephens, I. W.; Miotello, A.
- Determination of Pulsation Periods and Other Parameters of 2875 Stars ...** 2016  
ApJ Supplement Series, Volume 227, Issue 1, article id. 6, 13 pp.  
Vogt, N.; Contreras-Quijada, A.; Fuentes-Morales, I.; Vogt-Geisse, S.; Arcos, C.; Abarca, C.; [Agurto-Gangas, C.](#); Caviedes, M.; DaSilva, H.; Flores, J.; Gotta, V.; Peñaloza, F.; Rojas, K.; Villaseñor, J. I.
- Young stellar clusters in the VVV Survey containing massive YSOs** 2016  
ApJ, Volume 152, Issue 3, article id. 74, 23 pp.  
Borissova, J.; Ramírez Alegría, S.; Alonso, J.; Lucas, P. W.; Kurtev, R.; Medina, N.; Navarro, C.; Kuhn, M.; Gromadzki, M.; Retamales, G.; Fernandez, M. A.; [Agurto-Gangas, C.](#); Chené, A. N.; Minniti, D.; Contreras Pena, C.; Catelan, M.; Decany, I.; Thompson, M. A.; Morales, E. F. E.; Amigo, P.
- Detached cataclysmic variables are crossing the orbital period gap** 2016  
MNRAS, Volume 457, Issue 4, p.3867-3877.  
Zorotovic, M.; Schreiber, M. R.; Parsons, S. G.; Gänsicke, B. T.; Hardy, A.; [Agurto-Gangas, C.](#); Nebot Gómez-Morán, A.; Rebassa-Mansergas, A.; Schwöpe, A. D.
- VVV Galactic Star Clusters: VVV CL059** 2015  
Proceeding VI Reunión sobre Astronomía Dinámica en Latinoamérica (ADeLA 2014), RevMexAA.  
[Agurto Gangas, C.](#); Borissova, J.; Ramírez Alegría, S.; Kurtev, R.; VVV star cluster Team
- Fourteen new eclipsing SDSS white dwarf plus main-sequence binaries ...** 2015  
MNRAS, Volume 449, Issue 2, p.2194-2204.  
Parsons, S. G.; [Agurto-Gangas, C.](#); Gänsicke, B. T.; Rebassa-Mansergas, A.; Schreiber, M. R.; Marsh, T. R.; Dhillon, V. S.; Littlefair, S. P.; Drake, A. J.; Bours, M. C. P.; Breedt, E.; Copperwheat, C. M.; Hardy, L. K.; Buisset, C.; Prasit, P.; Ren, J. J.
- White dwarf-main sequence binaries from SDSS DR8: unveiling the cool ...** 2013  
MNRAS, Volume 433, Issue 4, p.3398-3410.  
Rebassa-Mansergas, A.; [Agurto-Gangas, C.](#); Schreiber, M. R.; Gänsicke, B. T.; Koester, D.

## Conferences/Schools/Workshop

- Poster: Is grain growth taking place around the young Cosmic Pretzel?** 4-8 Dec 2023  
ALMA at 10 years, Past Present and Future
- Poster: THE AGE-PRO ALMA Survey: A glimpse into the gas evolution in protoplanetary disks** 27 Nov - 1 Dec 2023  
XVII Latin American Regional IAU Meeting
- Talk: The AGE-PRO ALMA Survey: A glimpse into the evolution of gas in protoplanetary disks** 3-4 Oct 2023  
Discos de Santiago ESO-ALMA Meeting

<b>Talk: AGE-PRO Overview: ALMA survey of Gas Evolution in PROtoplanetary disks</b> 2nd CATA Meeting, Santiago	<i>1-3 Agosto 2023</i>
<b>Poster: Is grain growth taking place around the cosmic pretzel?</b> Protostars and Planets VII, Kyoto, Japan	<i>10-15 Abril 2023</i>
<b>Poster: Is grain growth taking place around the cosmic pretzel?</b> XVIII SOCHIAS Meeting. Universidad de la Frontera, Temuco, Chile	<i>13-16 Marzo 2023</i>
<b>COSPAR CAPACITY BUILDING WORKSHOP</b> PLANETARY SCIENCES DATA ANALYSIS Universidad de Antofagasta, CL	<i>16-27 Jan 2023</i>
<b>Workshop Accretion/Ejection Processes in Star Formation:</b> In Theory and in Practice European Southern Observatory, Vitacura, CL	<i>Nov 30- Dec 2 2022</i>
<b>Talk: Núcleo Milenio de formación planetaria Workshop</b> Universidad de Valparaíso, CL	<i>25-26 Ago 2021</i>
<b>2021 Sagan Exoplanet Summer Virtual Workshop:</b> Circumstellar Disks and Young Planets NASA Exoplanet Science Institute, Caltech, PASADENA, CA	<i>19-23 Jul 2021</i>
<b>Talk: Revealing the dust grain size in the inner envelope of the Class I protostar Per-emb-50</b>	<i>24-28 June 2019</i>
<b>Poster talk: Dust properties inside and outside the disk of BHB07-11</b> European Week of Astronomy and Space Science. Lyon, France.	
<b>Talk: Radiative transfer modelling of a protostellar disk</b> 7th International Max-Planck Research School on Astrophysics (IMPRS) Symposium. MPE, Garching, Germany	<i>4-5 April 2019</i>
<b>Talk: Radiative transfer modelling for the Per-emb-50 protostellar disk</b> Center for Astrochemical studies (CAS) Retreat. Ringberg, Germany	<i>5-7 Dec 2018</i>
<b>Talk: Revealing the dust grain size in the inner envelope of the Class I protostar Per-emb-50</b> Second Binational Meeting AAA-SOCHIAS. La Serena, Chile	<i>7-12 Oct 2018</i>
<b>II International Astrochemistry School</b> Universidad Autónoma de Chile. Santiago, Chile	<i>1-5 Oct 2018</i>
<b>Talk: Revealing the dust grain size in the inner envelope of the Class I protostar Per-emb-50</b> MPE Science Day 2018. Garching, Germany	<i>12 Sep 2018</i>
<b>Poster: Revealing the dust grain sizes in the envelope of Per-emb-50</b> Cosmic Dust: origin, applications and implications. Copenhagen, Denmark	<i>11-15 Jun 2018</i>
<b>Talk: Evidence of grain growth in Class I protostar: Per-emb-50</b> Center for Astrochemical studies (CAS) Retreat. Ringberg, Germany	<i>28-30 Jun 2017</i>
<b>Talk: Grain growth in Class I Protostars</b> MIAPP PROGRAMME: PROTOPLANETARY DISKS AND PLANET FORMATION AND EVOLUTION. Garching, Germany	<i>29 May- 23 Jun 2017</i>
<b>Poster: Grain growth in Class I protostar Per-emb-50: A dust continuum analysis with NOEMA &amp; SMA</b> Francesco's legacy: star formation in space and time. Florence, Italy.	<i>5-9 Jun 2017</i>
<b>9th IRAM millimeter interferometry School</b> Institut de Radioastronomie Millimétrique IRAM, Grenoble, France	<i>10-14 Oct 2016</i>
<b>Talk: Grain growth in Class I Protostars</b> 2nd International Max-Planck Research School on Astrophysics (IMPRS) Symposium. MPE, Garching, Germany	<i>5-6 Oct 2016</i>
<b>Talk: Combining the Catalina light curve catalogue and SDSS to identify new eclipsing PCEBs</b>	
<b>Poster: Young stellar clusters in the VVV Survey containing massive YSOs</b> XII annual meeting of the Chilean Astronomical Society (SOCHIAS). Puerto Varas, Chile	<i>12-15 Mar 2015</i>

### First VLT School in Chile

3-7 Nov 2014

Universidad de Valparaíso, Chile

### Poster: VVV Galactic Star Clusters: VVV CL059

Aug 29 - Oct 3 2014

VI Reunión sobre Astronomía Dinámica en Latinoamérica (ADeLA 2014). Santiago, Chile

### Poster: VISTA Variables in The Via Lactea Galactic Star Clusters: VVV CL059

7-8 Aug 2014

First Workshop of Millenium Institute of Astrophysics. Los Andes, Chile

### MAD Planet Formation Summer School

20-22 Mar 2013

Cerro Calán, Santiago, Chile

### Talk: White dwarf-M dwarf binaries from Sloan Digital Sky Survey

22-26 Oct 2012

First National Meeting of Physics and Astronomy Students. Valparaíso, Chile

### Talk: White dwarf-M dwarf binaries from Sloan Digital Sky Survey

10-12 Oct 2012

IX annual meeting of the Chilean Astronomical Society (SOCHIAS). Viña del Mar, Chile

### Poster: White dwarf-M dwarf binaries from Sloan Digital Sky Survey

3-7 Oct 2011

First Bi-national Meeting AAA-SOCHIAS. San Juan, Argentina.

## Programming skills

**Programming languages** More than 8 years of experience using Python and libraries Numpy, Scipy, Matlab and emcee. **Astronomical software** User of RADMC-3D, CASA, MIRIAD, Gildas, Ds9, Topcat, VOSpec. **Operative Systems** Experience with Mac OSX, Linux and Windows. **Computer skills** Google user: Docs, Sheets, Forms and Slides. Advanced user of Latex/Overleaf and Keynote. **Digital design skills** Wordpress, iMovie, DaVinci, GIMP and Canva. **Languages** Native Spanish. Advanced English. Basic German A2

## Certifications

Check certificates here [www.linkedin.com](http://www.linkedin.com)

- **Escuela Lideres Políticas 2021**. 40h lectures from Servicio Nacional de la mujer y equidad de genero
- **Python for Data Science and AI** IBM lectures 22h January 2021
- **Data Science Methodology** IBM lectures 8h December 2020
- **Tools for Data Science** IBM lectures 20h November 2020
- **Python Programming** Course by Technical University of Munich 15h Marzo 2017
- **Git Programing** Course by Technical University of Munich 3h Marzo 2017

## Outreach activities

- 2013-present **Co-founder and Science Communicator**, *Star Tres Project*. *Astronomy outreach initiative*, [www.startres.net](http://www.startres.net), We have shared more than **100 videos about astronomy** on YouTube and the interest of +36k subscriptions. We published AstroCalendario 2020 with Editorial Usach and we were granted by IAU for the outreach project (AVERO: AVENTura ROcosa) that have benefit **more than 2000 students around Chile**. Collaborations with Planetario USACH, Minciencia, CECREA, MAS, NPF, SOCHIAS, ESO, ALMA, Marca Chile, SERNAMEG, SERNATUR, ESO Supernova, NAEC-Chile, Puerto de Ideas, Fundación Mustakis, Google Latinoamerica, centro de comunicaciones Universidad Autonoma de Chile, Universidad de Chile, Universidad de Valencia and multiple astronomy and science outreach initiatives.
- 2021-present **DAS & CATA TV interviews & media astronomer**, *Collaborator and outreach activities creator*.
- 2013-present **Scientific Assistant. EXPLORA and programa de investigación e innovación escolar IIE**, *National outreach programme and assessment of science and technology*.

## Community service

- April 2023-present **1st Vicepresident Chilean Astronomical Society (SOCHIAS)**, *Current duties: SOCHIAS representation meetings. Organization Regional and National Olympics of astronomy and astronautics 2023 and 2024. Newsletter SOCHIAS. Chair of the LOC XIX SOCHIAS Annual Meeting*.