

Nicolás Garavito-Camargo – Curriculum Vitae

Flatiron Research Fellow | Center for Computational Astrophysics (CCA), NYC
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Research Interests

Galaxy Dynamics, Local Group Dynamics, Dwarf Galaxies, Galactic Archaeology, Astrophysical probes of Dark Matter, Galaxy Formation and Evolution.

Appointments:

2021 – present. Flatiron Research Fellow. Center for Computational Astrophysics, Flatiron Institute.

Education

Ph.D., Astronomy and Astrophysics, University of Arizona, 2021.

Advisor: Dr. Gurtina Besla

M.Sc., Physics, Universidad de Los Andes, Bogotá, Colombia, 2015.

Advisor: Dr. Jaime E. Forero-Romero

B.Sc., Physics, Universidad Nacional de Colombia, Bogotá, Colombia, 2013.

Advisor: Dr. Rigoberto A. Casas Miranda

Fellowships and Awards

- University of Arizona, Theoretical Astrophysics Program, Graduate Student Research Prize 2021.
- University of Arizona College of Science award for Excellence in Service for graduate students, 2020. (*Awarded to one graduate student across the college of science per year.*)
- University of Arizona theory travel grant, 2016, 2018.
- McCarthy-Stoeger Scholarship 2015-2017, Vatican Observatory.

Talks

33 Total: 13 Invited, 23 in North America, 5 in Europe, 5 in Latin America.

Conferences

- [Division on Dynamics Astronomy](#), Virtual meeting, May 2021.
- [Streams 21](#), Virtual Conference, February 2021.
- [The Local Group: Assembly and Evolution](#), virtual conference, August 2020.
- [European Astronomical Society meeting](#), virtual meeting, June 2020.
- Durham University, UK, [Small Galaxies Cosmic Questions](#), August, 2019.
- MPA, Heidelberg, [Stellar halos across the cosmos](#), July 2018.
- LARIM, Cartagena, Colombia, October 2016.
- EWASS, Geneva, Switzerland, July 2014.

Seminars

- Universidad de Antioquia, Invited seminar, February, 2021.†
- University of Massachusetts, Invited Colloquium, February, 2021.†
- University of Madison-Wisconsin, Science seminar, November, 2021.†
- University of Michigan, Galaxies group seminar, November, 2021.†
- NYU, CCPP, seminar, November 2021.†
- CCA, Flatiron Institute, Lunch Talk, October, 2021.
- Steward Observatory, Theoretical Astrophysics Program (TAP) colloquium, September, 2021.†
- [ComSciCon](#), June 2021, †.
- Steward Observatory, Galaxy lunch talk, March, 2021.
- Univesidad de los Andes, Astronomy Seminar, February, 2021.
- UC Irvine, Astronomy Seminar, January, 2021. †
- Steward Observatory, Early Career Scientist talk, December, 2020. †
- CCAPP, Seminar, December, 2020. †
- Princeton, Journal Club, November 2020. †
- KIPAC, Stanford, Tea-Talk, October 2020.
- Harvard Center for Astrophysics, GCSP seminar, October 2020.
- Carnegie Observatories, seminar, October 2020 †.
- University of California Berkeley, lunch talk, September 2020.
- The Royal Observatory of Edinburgh, UK, Coffee Talk, August 2019 †.
- W.M. Keck Observatory, Journal Club, June 2019.
- Magellanic Cloud Fest III, University of Arizona, May, 2019.
- JILA Seminar, JILA Institute, University of Colorado, December 2017.
- STScI Galaxies Journal Club. December 2016.
- Magellanic Cloud Fest II, University of Arizona, March 2016.
- UNAM, Mexico City, Mexico, Nov 2013.
- Centro de Investigaciones De Astronomía CIDA, Merida, Venezuela, July 2013.

†*Invited*

Posters

- European Astronomical Society meeting, virtual meeting, June 2020.
- Rediscovering our Galaxy, IAU symposium 334, Potsdam, Germany. July 2017.

Grants

- IAU office of astronomy for development. Funding for developing a mentoring program in Colombia, 2021-2022. PI: Nicolás Garavito-Camargo.
- LSSTC Grant Award #2021-51, 2001. PI: Andres A. Plazas Malagón
- University of Arizona theory travel grant, 2016, 2018.
- IAU travel grant.2016.

Telescope Time Awarded

- Blanco Telescope, “ *A VISTA-DECam Experiment in Near-Field Cosmology: Search for the Magellanic Dark Matter Wake*” cycle 2020B. PI: Julio Chaname, 3 nights

Professional Experience

Computational:

8+ years of experience with C, C++, Python, OpenMP, HPC systems.

Service:

- Referee of MNRAS, Nature, and ApJ. (5 papers, 2018-present)
- Proposal reviewer for [Colombian Science Clubs](#), 2018.
- Local Organizing Committee of the [Andean Cosmology School](#), Universidad de Los Andes, 2015.
- Organizer of the student astronomy seminar at the Planetarium of Bogotá, 2014-2015.

DEI Leadership:

- Co-creator of the 10-week [RECA internship program](#) for astronomy students in Colombia. May-August 2021.
- Co-creator of the [RECA mentorship program](#) for astronomy students in Colombia. 2020-present. (The mentorship program pairs up students with professional astronomers to provide guidance through the application process to graduate programs)
- Co-organizer, [Diversity Journal Club](#) Steward Observatory, 2018-2021.
- Creator, [Astrocharlas](#), Steward Observatory, 2018-present. (Spanish outreach series talks in astronomy)
- Writer for [Astrobitos](#), 2018-present.
- Mentor, Tucson Initiative for Minority Engagement in Science and Technology Program [TIMESTEP](#), 2016-2018.

Outreach

- Classroom astronomer, NOAO Project [ASTRO](#), 2018-2019.
- Discussion leader, NOAO [Teen Astronomy Cafe](#), 2018.
- Planetarium SpaceArt mentor for Children, Bogotá, Colombia, 2013-2014.

Teaching Experience

- TA, Astronomy Tutoring for Majors & Minors Program. University of Arizona, Spring 2019.
- Computational Physics, Teaching assistant, PHYS305. University of Arizona. Spring 2018.
- Computational Tools: Universidad de los Andes, 1st 2014-2015.
- Computational Methods Laboratory: Universidad de los Andes, 1st 2014-2015.
- TA, Computational Methods: Universidad de los Andes, 2nd 2014.
- Physics I Laboratory: Universidad de los Andes, 2nd Semester-2013.

Observing Experience

- DECam, Blanco-4m telescope, CTIO, Chile. 3 nights, 2020.
- VATT telescope. Mt Graham, Arizona - 4 nights, 2016.
- CIDA, Merida, Venezuela - 2 nights, 2013.

Research highlights in the news

- Sky & Telescope: [How our largest dwarf galaxy keeps other in line](#)
- JPL Nasa: [Astronomers Release New All-Sky Map of Milky Way's Outer Reaches](#)
- Syfy Wire: [Dark Matter could be powering a galaxy that orbits the Milky Way until they collide](#)
- Phys.org: [Astronomers release new all-sky map of the Milky Way's outer reaches](#)
- University of Arizona news: [Astrophysicist help chart dark matters invisible ocean](#)
- AAS NOVA 2020: [An Asymmetric Dark Matter Halo](#)
- AAS NOVA 2019: [Hunting for a Dark Matter Wake](#)

Publications list

[ORCID](#), [ADS](#), [arXiv](#)

refereed: 12 – first author: 4 – h -index: 9 – citations : 428 (as of Feb 19th 2022)

First author papers:

1. *The Clustering of Orbital Poles Induced by the LMC: Hints for the Origin of Planes of Satellites*
Garavito-Camargo, Nicolás; Patel, Ekta; Besla, Gurtina; Price-Whelan, Adrian; Laporte, Chervin; Gómez, Facundo A; Kathryn V. Johnston; ApJ, 923, 2, (2021) [5 citations].
2. *Quantifying the impact of the Large Magellanic Cloud on the structure of the Milky Way's dark matter halo using Basis Function Expansions*
Garavito-Camargo, Nicolás; Besla, Gurtina; Laporte, Chervin; Price-Whelan, Adrian M.; et al. ApJ, 919, 109, (2021) [22 citations].
3. *Hunting for the DM Wake induced by the LMC.*
Garavito-Camargo, Nicolas; Besla, Gurtina; Laporte, Chervin F.P; Johnston, Kathryn V; Gómez, Facundo A; Watkins, Laura. ApJ Accepted, (2019) [70 citations].
4. *The impact of gas bulk rotation on the morphology of the Lyman-alpha line.*
Garavito-Camargo, J.N; Forero-Romero J.E; Dijkstra M. ApJ, 795, 120, (2014)[7 citations].

Papers as co-author with substantial contributions:

6. *Detection of the All-Sky Response of the Galactic Halo to the Magellanic Clouds*
Conroy, Charlie; Naidu, Rohan P; **Garavito-Camargo; Nicolás**; Besla, Gurtina; et al. Nature (2021).
7. *Quantifying the Stellar Halo's Response to the LMC's Infall with Spherical Harmonics.*
Cunningham, Emily C; **Garavito-Camargo, Nicolas**, Deason, Alis J; Johnston, Kathryn V. et al. ApJ, 898, 1,(2020).
8. *The orbital histories of Magellanic Satellites Using Gaia DR2 proper motions.*
Patel, Ekta; Kallivayalil, Nitya; **Garavito-Camargo, Nicolas** et al. ApJ 893, 121, (2020).

Co-author papers with minor contributions:

9. *The highest-speed local dark matter particles come from the Large Magellanic Cloud.*
Besla, Gurtina; Peter, Annika; **Garavito-Camargo, Nicolas**. JCAP, 11, 13, (2019).
10. *The influence of Sagittarius and the Large Magellanic Cloud on the stellar disc of the Milky Way Galaxy.*
Laporte, Chervin F. P; Johnston, Kathryn V; Gómez, Facundo A; **Garavito-Camargo, Nicolas**; Besla, Gurtina. MNRAS, 481, 286L, (2018).
11. *The Extremely Luminous Quasar Survey in the Sloan Digital Sky Survey Footprint. II. The North Galactic Cap Sample.*
Schindler, Jan-Torge; Fan, Xiaohui; McGreer, Ian D; Yang, Jinyi; Wang, Feige; Green, Richard; **Garavito-Camargo, Nicolas** et al., ApJ, 863, 144S, (2018).

12. *Modelling the gas kinematics of an atypical Ly α emitting compact dwarf galaxy.*
Forero-Romero, Jaime E., Gronke, Max., Remolina-Gutiérrez, Maria Camila, **Garavito-Camargo, Nicolas**, Dijkstra M. MNRAS, 474, 12F, (2018).
13. *Response of the Milky Way's disc to the Large Magellanic Cloud in a first infall scenario.*
Laporte, C.; Gomez, F; Besla, Gurtina; Johnston, Kathryn V; & **Garavito-Camargo, Nicolas**. MNRAS, 473, 1218L, (2018).

White papers

1. *Mass Spectroscopy of the Milky Way*
Dey, Arjun. et al. (incl. **Garavito-Camargo**). [Astro2020: Decadal Survey on Astronomy and Astrophysics, Vol. 51, Issue 3, id. 489 \(2019\).](#)
2. *The Multidimensional Milky Way.*
Sanderson, Robyn E .et al. (incl. **Garavito-Camargo**) 2019. [Astro2020: Decadal Survey on Astronomy and Astrophysics, 2019, Vol. 51, Issue 3, id. 347 \(2019\).](#)