

Yenifer Angarita Arenas, Ph.D.

Curriculum Vitae

PERSONAL DETAILS

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EDUCATION

Ph. D. Astrophysics **2019-2025**

Radboud University, Nijmegen, The Netherlands.

Thesis: “Starlight polarization, a Galactic compass: Navigating the magnetized turbulent interstellar medium”

Supervisors: Prof. Dr. Marijke Haverkorn and Dr. Claudia Rodrigues

M. Sc. by Research in Physics and Astronomy **2018-2019**

University of Leeds, Leeds, United Kingdom.

Thesis: “Pattern Finding in Samples of Spectroscopy Data”

Supervisors: Dr. Stuart Lumsden and Dr. Catherine Walsh

B. Sc. Astronomy **2010-2017**

University of Antioquia, Medellín, Colombia.

Thesis: “Constraints on photoevaporation models of protoplanetary disks: new observations in Corona Australis”

Supervisors: Dr. Roberto Galván-Madrid and Dr. Pablo A. Cuartas

PROFESSIONAL APPOINTMENTS

Postdoctoral Researcher **2024-2026**

Astronomy and Plasma Physics Division, Chalmers University of Technology, Sweden.

Conduct independent research. Data analysis and programming. Write and submit research articles to peer-reviewed journals. Apply for research grants, fellowships, and funding to support projects. Collaborate with other scientists. Share research findings at international meetings, workshops, and colloquiums. Assist and mentor Ph.D. and master’s students.

Doctorate Candidate **2019-2024**

Department of Astrophysics/IMAPP, Radboud University, The Netherlands.

Conduct independent research. Data collection and analysis. Programming (often in Python, C++, or FORTRAN). Collaborate on other research projects. Attend and present at conferences. Write and submit papers to peer-reviewed journals. Apply for grants and funding. Science outreach and public engagement.

- Teaching Assistant, Observational Astronomy** **2019-2023**
Department of Astrophysics/IMAPP, Radboud University, The Netherlands.
 Prepared and developed workshops and assisted in the evaluation of the course at the bachelor's level.
- Teaching Assistant, Formation and Evolution of Galaxies** **2019-2023**
Department of Astrophysics/IMAPP, Radboud University, The Netherlands.
 Prepared and developed workshops and assisted in the evaluation of the course at the master's level.
- Teaching Assistant, Computing: Python** **2019**
School of Physics and Astronomy, University of Leeds.
 Prepared and developed workshops and assisted in the evaluation of the courses at bachelor's levels.
- Professional in Production of Astronomical Content for Planetariums** **2018**
Parque Explora and Planetarium of Medellín, Medellín, Colombia.
 Produced Astronomy visualizations and scientific content for the planetarium and the museum. Produced and developed science outreach activities for audiences of all ages.
- Science Communicator** **2011-2017**
Parque Explora and Planetarium of Medellín, Medellín, Colombia.
 Explained basic concepts in science and Astronomy to museum visitors. Performed science experiments with museum visitors (young children through adults).

OTHER PROFESSIONAL ACTIVITIES AND MEMBERSHIPS

- Mentor**, Network of Colombian astronomy students (RECA) mentorship program **2023-pres.**
Colombia.
- Member**, Interstellar MAGnetic field INference Engine (IMAGINE) consortium **2019-pres.**
Radboud University, Nijmegen, The Netherlands.
- Member**, *all-southern-sky survey* SOUTHPOL collaboration **2019-pres.**
Brazil, The Netherlands, Chile, and Japan.
- Organizer**, Sterrenkundeclub (Astronomy Club) Radboud **2022-2023**
Radboud University, Nijmegen, The Netherlands.
- Member**, MAGALOPS: The MAGnetic field in the GALaxy, using Optical Polarization of Stars research group **2019-2024**
Radboud University, Nijmegen, The Netherlands.
- Member**, Computational Physics and Astrophysics (FACom) research group **2014-2018**
University of Antioquia, Medellín, Colombia.

RESEARCH INTERESTS

Galactic magnetism and interstellar medium

Study the properties of the Galactic magnetic field and the general interstellar medium using observational tracers in different wavelengths, such as starlight polarization, polarized thermal dust emission, synchrotron emission, dust extinction, atomic and molecular line emission, and among others.

Stellar Formation

Studying the chemical and physical evolution of star-forming regions of massive stellar young objects through radio observations and machine learning classification techniques.

GRANTS

MAGALOPS: The MAGnetic field in the GALaxy, using Optical Polarization of Stars

2019-2024

European Research Council (Brussels, BE). Grant number: 772663.

DARA Big Data: Colombia

2018-2019

Science and Technology Facilities Council (Swindon, GB). Grant number: ST/R001944/1.

PUBLICATIONS

First-author refereed journal articles

3. **Y. Angarita**, G. Chaparro, S. L. Lumsden, et al. *Pattern Finding in millimetre-Wave Spectra of Massive Young Stellar Objects*. 2025, A&A, 694, A20, doi: [10.1051/0004-6361/202452063](https://doi.org/10.1051/0004-6361/202452063).
2. **Y. Angarita**, M. J. F. Versteeg, M. Haverkorn, et al. *Interstellar Polarization Survey. IV. Characterizing the Magnetic Field Strength and Turbulent Dispersion Using Optical Starlight Polarization in the Diffuse Interstellar Medium*. 2024, AJ, 168, 47, doi: [10.3847/1538-3881/ad4b14](https://doi.org/10.3847/1538-3881/ad4b14).
1. **Y. Angarita**, M. J. F. Versteeg, M. Haverkorn, et al. *Interstellar Polarization Survey. III. Relation between Optical Polarization and Reddening in the General Interstellar Medium*. 2023, 772 AJ, 166, 34, doi: [10.3847/1538-3881/acdc1e](https://doi.org/10.3847/1538-3881/acdc1e).

Other refereed journal articles

3. M. J. F. Versteeg, **Y. Angarita**, A. M. Magalhães, et al. *Magnetic Fields in the Southern Coalsack and Beyond*. 2024, AJ, 167, 177, doi: [10.3847/1538-3881/ad2e08](https://doi.org/10.3847/1538-3881/ad2e08).
2. Y. Doi, K. Nakamura, K. S. Kawabata, et al. incl. **Y. Angarita**. *Tomographic Imaging of the Sagittarius Spiral Arm's Magnetic Field Structure*. 2024, ApJ, 961, 13, doi: [10.3847/1538-4357/ad0fe2](https://doi.org/10.3847/1538-4357/ad0fe2).
1. M. J. F. Versteeg, A. M. Magalhães, M. Haverkorn et al. incl. **Y. Angarita**. *Interstellar Polarization Survey. II. General Interstellar Medium*. 2023, AJ, 165, 87, doi: [10.3847/1538-3881/aca8fd](https://doi.org/10.3847/1538-3881/aca8fd).

Conference Proceedings

1. A. M. Magalhães, R. Santos de Lima, C. V. Rodrigues et al. incl. **Y. Angarita**. *Galactic Foreground Optical Polarization Towards the BICEP2 Field*. 2022, Bulletin of the AAS, 54(6).

Under review

1. **Y. Angarita**, M. J. F. Versteeg, M. Haverkorn, et al. *Interstellar Polarization Survey. V. Galactic magnetic field tomography in the spiral arms using optical and near-infrared starlight polarization*. Submitted to AJ in November 2024.

In progress

1. M. J. F. Versteeg, **Y. Angarita**, M. Haverkorn, et al. *Comparison of Planck 353 GHz polarization with infrared starlight polarimetry at low Galactic latitudes*. To be submitted to AJ in 2025.

SCIENTIFIC PRESENTATIONS

Invited Talks, Colloquium, and Seminars

12. **Seminar**, Department of Astronomy Seminar **May. 2025**
University of São Paulo, São Paulo, Brazil.
11. **Seminar**, Astro-Seminar, Astronomy and Plasma Physics Division **Mar. 2025**
Chalmers University of Technology, Gothenburg, Sweden.
10. **Seminar**, Department of Physics Seminar **Nov. 2024**
University of Crete, Crete, Greece.
9. **Invited Talk**, KIPAC Tea Talk **Nov. 2023**
KIPAC, Stanford University, California, USA.
8. *(virtual)* **Invited Talk**, Conexión Sin Fronteras Program **Jun. 2022**
Medellín, Colombia.
7. *(virtual)* **Invited Talk**, Origenes Talk Series **Jul. 2021**
Medellín, Colombia.
6. *(virtual)* **Invited Talk**, UniverCitas Talk Series **Mar. 2021**
Medellín, Colombia.
5. *(virtual)* **Invited Talk**, Hablemos del Universo Talk Series **Mar. 2021**
Planetarium of Bogotá, Bogotá, Colombia.
4. **Seminar**, Physics Department Seminar **Sep. 2017**
University of Antioquia, Medellín, Colombia.
3. **Seminar**, Summer School Seminar **Jul. 2017**
ASTRON/JIVE, Dwingeloo, Netherlands.
2. **Seminar**, Physics Department Seminar **Aug. 2016**
University of Antioquia, Medellín, Colombia.
1. **Seminar**, 1st Summer Stays in Astrophysics Seminar **Jul. 2016**
IRyA-UNAM, Morelia, Mexico.

Contributed Talks and Posters

15. **Talk**, Interstellar Institute 7 (II7) **Jul. 2025**
Institut Pascal (IPa), Orsay, Paris, France.
14. *(virtual)* **Talk**, Structure and polarization in the interstellar medium:
A Conference in Honor of Prof. John Dickey **Feb. 2025**
*Worldwide, co-hosted by Stanford University and the Australia
Telescope National Facility (ATNF), CSIRO.*

13. **Talk**, Cosmic Magnetism in the Pre-SKA Era **May. 2024**
Kagoshima University, Kagoshima, Japan.
12. **Talk**, Salpeter Workshop on the Interstellar Medium **Dec. 2023**
Cornell University, Ithaca, New York, USA.
11. **Talk**, Interstellar Institute 6 (II6) **Jul. 2023**
Institut Pascal (IPa), Orsay, Paris, France.
10. **Talk**, IMAGINE-NORDITA Meeting **Apr. 2023**
Nordic Institute for Theoretical Physics, Stockholm, Sweden.
9. **Poster**, Netherlands Research School for Astronomy (NOVA) evaluation **Jan. 2023**
Groningen, The Netherlands.
8. **Talk**, Netherlands Research School for Astronomy (NOVA) Network 2 Meeting **Mar. 2022**
Leiden University, Leiden, The Netherlands.
7. **Talk**, Interstellar Institute 5: With Two Eyes (II5) **Jul. 2022**
Institut Pascal (IPa), Orsay, Paris, France.
6. (*virtual*) **Poster**, 76th Netherlands Astronomers Conference **May 2021**
Leiden, The Netherlands
5. (*virtual*) **Poster**, IAUS 360: Astronomical Polarimetry 2020. New Era of Multi-Wavelength Polarimetry **Mar. 2021**
Hiroshima, Japan
4. (*virtual*) **Talk**, IMAGINE virtual meeting **Jul. 2020**
3. **Poster**, From Stars to Planets II (FSTPII) Conference **Jun. 2019**
Chalmers University of Technology, Gothenburg, Sweden.
2. **Talk**, IV Symposium in Exact and Natural Sciences **Nov. 2017**
University of Antioquia, Medellín, Colombia.
1. **Talk**, V Colombian Meeting of Astronomy and Astrophysics (COCOA) Conference **Oct. 2017**
Technological University of Pereira (UTP), Pereira, Colombia.

OTHER CONFERENCES AND WORKSHOPS

6. COMRAD2024: COsmic Magnetism with RADio Astronomy **Nov. 2024**
Aula Dini, Scuola Normale Superiore, Pisa, Italy
5. IMAGINE: Modelling the Galactic Magnetic Field **Oct. 2021**
Lorentz Center, Leiden, The Netherlands

4. Radio Astronomy for Development in the Americas,
RADA Big Data, Workshop **Feb. 2019**
Newton Fund and University of Manchester, Medellín, Colombia.
3. Bonn-Dwingeloo Meeting - MPIfR **Jul. 2017**
Max Planck Institute for Radio Astronomy, Bonn, Germany.
2. Communicating Astronomy with the Public (CAP) **May 2016**
Medellín, Colombia.
1. XI Meeting of the Astronomy Network of Colombia (RAC) **Aug. 2010**
Medellín, Colombia.

COMPLEMENTARY EDUCATION

- Radioastronomy with ALMA (AstroTwinCoLo)** **2016**
By Dr. Carmen Toribio
University of Leiden in partnership with University of Antioquia,
Medellín, Colombia.
- Introduction to Astrochemistry (AstroTwinCoLo)** **2016**
By Dr. Alan Heays
University of Leiden in partnership with University of Antioquia,
Medellín, Colombia.
- Radioastronomy (Instrumentation & Data Reduction)** **2015**
By Dr. Stanley Kurts and Dr. Roberto Galvan-Madrid
University of Antioquia in partnership with IRyA, Medellín, Colombia.

SKILLS

- Languages* Spanish (mother tongue).
English (fluent written and spoken).
- Software* Programming:
Fluent in Python and Jupyter (Libraries such as AstroPy, SciPy, Pandas, NumPy, Matplotlib, Scikit-learn, and Seaborn).
Intermediate in C and C++.
- Data processing:
Intermediate in CASA, Pyraf(IRAF), CASSIS, GAIA, and Splat-VO.
Basic in DIFMAP.