

# Yenifer Angarita Arenas, M.Sc.

*Curriculum Vitae*

## PERSONAL DETAILS

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## EDUCATION

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### Ph. D. Astrophysics Candidate 2019-2024

*Radboud University, Nijmegen, The Netherlands.*

**Thesis:** “Optical starlight polarimetry to probe 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

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### 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

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**Mentor**, Network of Colombian astronomy students (RECA) mentorship program  
*Colombia.*

**2023-pres.**

**Organizer**, Sterrenkundeclub (Astronomy Club) Radboud  
*Radboud University, Nijmegen, The Netherlands.*

**2022-2023**

**Member**, MAGALOPS: The MAGnetic field in the GALaxy, using Optical  
Polarization of Stars research group  
*Radboud University, Nijmegen, The Netherlands.*

**2019-pres.**

**Member**, Interstellar MAGnetic field INference Engine (IMAGINE) consortium  
*Radboud University, Nijmegen, The Netherlands.*

**2019-pres.**

**Member**, *all-southern-sky survey* SOUTHPOL collaboration  
*Brazil, The Netherlands, Chile, and Japan.*

**2019-pres.**

**Member**, Computational Physics and Astrophysics (FACom) research group  
*University of Antioquia, Medellín, Colombia.*

**2014-2018**

## RESEARCH INTERESTS

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**Galactic magnetism**

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

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**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

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### First-author refereed journal articles

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

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

2. M. J. F. Versteeg, **Y. Angarita**, A. M. Magalhães, et al. *Magnetic fields in the Southern Coalsack and beyond*. 2023, submitted to AJ.
1. Yasuo Doi, Kengo Nakamura, Koji S. Kawabata et al. incl. **Y. Angarita**. *Tomographic Imaging of the Sagittarius Spiral Arm's Magnetic Field Structure*. 2023, submitted to AJ.

### In progress

1. **Y. Angarita**, M. J. F. Versteeg, M. Haverkorn, et al. *Interstellar Polarization Survey. IV. Characterizing the magnetic field strength and turbulent dispersion with optical starlight polarization in the diffuse interstellar medium*. To be submitted in Nov. 2023.

## SCIENTIFIC PRESENTATIONS

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### Invited Talks, Colloquium, and Seminars

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| 8. (virtual) <b>Invited Talk</b> , Conexión Sin Fronteras Program<br><i>Medellín, Colombia.</i>                         | <b>Jun. 2022</b> |
| 7. (virtual) <b>Invited Talk</b> , Origenes Talk Series<br><i>Medellín, Colombia.</i>                                   | <b>Jul. 2021</b> |
| 6. (virtual) <b>Invited Talk</b> , UniverCitas Talk Series<br><i>Medellín, Colombia.</i>                                | <b>Mar. 2021</b> |
| 5. (virtual) <b>Invited Talk</b> , Hablemos del Universo Talk Series<br><i>Planetarium of Bogotá, Bogotá, Colombia.</i> | <b>Mar. 2021</b> |
| 4. <b>Invited Talk</b> , Physics Department Seminar<br><i>University of Antioquia, Medellín, Colombia.</i>              | <b>Sep. 2017</b> |
| 3. <b>Talk</b> , Summer School Seminar<br><i>ASTRON/JIVE, Dwingeloo, Netherlands.</i>                                   | <b>Jul. 2017</b> |

2. **Invited Talk**, Physics Department Seminar **Aug. 2016**  
*University of Antioquia, Medellín, Colombia.*

1. **Talk**, 1st Summer Stays in Astrophysics Seminar **Jul. 2016**  
*IRyA-UNAM, Morelia, Mexico.*

### Contributed Talks and Posters

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) **Mar. 2022**  
 Network 2 Meeting  
*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. **Mar. 2021**  
 New Era of Multi-Wavelength Polarimetry  
*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 **Oct. 2017**  
 (COCOA) Conference  
*Technological University of Pereira (UTP), Pereira, Colombia.*

## OTHER CONFERENCES AND WORKSHOPS

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| 5. IMAGINE: Modelling the Galactic Magnetic Field<br><i>Lorentz Center, Leiden, The Netherlands</i>  | Oct. 2021 |
| 4. Radio Astronomy for Development in the Americas,<br>RADA Big Data, Workshop<br><i>Newton Fund and University of Manchester, Medellín, Colombia.</i> | Feb. 2019 |
| 3. Bonn-Dwingeloo Meeting - MPIfR<br><i>Max Planck Institute for Radio Astronomy, Bonn, Germany.</i>   | Jul. 2017 |
| 2. Communicating Astronomy with the Public (CAP)<br><i>Medellín, Colombia.</i>   | May 2016  |
| 1. XI Meeting of the Astronomy Network of Colombia (RAC)<br><i>Medellín, Colombia.</i>   | Aug. 2010 |

## COMPLEMENTARY EDUCATION

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|---|------|
| <b>Radioastronomy with ALMA (AstroTwinCoLo)</b><br><i>By Dr. Carmen Toribio</i><br><i>University of Leiden in partnership with University of Antioquia, Medellín, Colombia.</i>                           | 2016 |
| <b>Introduction to Astrochemistry (AstroTwinCoLo)</b><br><i>By Dr. Alan Heays</i><br><i>University of Leiden in partnership with University of Antioquia, Medellín, Colombia.</i>                         | 2016 |
| <b>Radioastronomy (Instrumentation &amp; Data Reduction)</b><br><i>By Dr. Stanley Kurts and Dr. Roberto Galvan-Madrid</i><br><i>University of Antioquia in partnership with IRyA, Medellín, Colombia.</i> | 2015 |

## SKILLS

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