

LUISA FERNANDA ZAMBRANO-MARIN

Space Scientist & Communicator

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SpaceLuisa



STANCE

"Apophis fly by presents a key opportunity for the future of space resource utilization"

IN A NUTSHELL

- Dedicated scientist**
Experience in multiple wavelengths and diverse instrumentation.
- Experimental research skills**
In applied physics, experience in optical and radio telescope systems, Juno mission magnetometer and custom made instruments for observing facilities.
- 18 years of experience in Space Sciences**
Astronomy and Education including work at, NASA-Goddard and Ames Research Centers, the Kitt Peak Observatory in Arizona, and at the Vatican Observatory.
- International Network**
Persistent advocate of Space applications, technologies and education.
- Experienced in producing results within a limited budget**
Coordinated activities and project management integrating academia and administration practice.

EDUCATION

PhD. in Space Sciences
Universidad de Granada
Spring 2025 Granada, Spain/ Florida, USA

M.Sc. in Space Sciences
International Space University
Sept 2007 Strasbourg, France

B.Sc. in Applied Physics
UMET, Ana G. Mendez University System
May 2005 San Juan, PR

SCIENCE PUBLICATIONS

- Google Scholar Profile
- Open Researcher and Contributor ID (ORCID)
- NASA-Astrophysics Data System

MOST PROUD OF

- Chambliss Astronomy Achievement Award**
233rd AAS Meeting
- Fostering a STEAM mindset**
Creation of a pre-college research programs focused on space exploration
- Alumni**
Over 300 former students doing science
- Inspiring women in space sciences**
To balance science and family

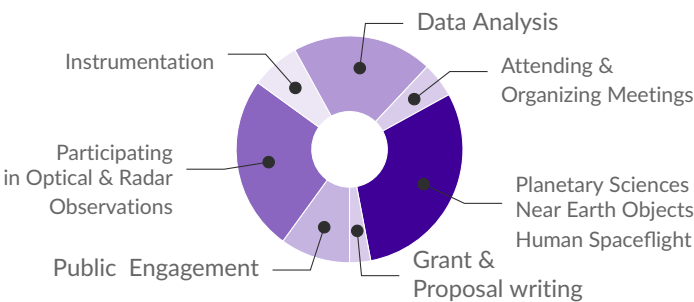
STRENGTHS & INTEREST

- Science Communication
- Motivator & Leader
- Enthusiastic
- Creative
- Reliable
- Kinesthetic Teaching
- ESL
- Apophis
- near-Earth Objects
- Small Bodies
- Experimental research
- Human Space Habitation

LANGUAGES

- English
- Spanish
- Italian
- French

AREAS OF EXPERTISE



EXPERIENCE

Science Staff

Florida Space Institute, University of Central Florida, Planetary Radar Group

📅 Aug 2020 -present

📍 Florida, USA

- On going characterization of Near Earth Objects observed with radar. Developing shape models, dynamical and physical properties.
- Develop catalogue of Arecibo Planetary Radar Data Legacy
- Member of the Small Bodies Assessment Group, NEO-WARP initiative, Planetary Defence community at large.

Arecibo Observatory/UCF- Planetary Radar Group

📅 Apr 2018- Aug 2022

📍 Arecibo, PR

- 7 years of experience with radar observations and techniques in support of post detection characterization of near-earth objects and other solar system bodies
- Preparation and participation in observations, data processing, archiving, and study of near-Earth asteroids and other Solar System bodies with the Arecibo Planetary radar system

Arecibo Observatory/ USRA- Planetary Radar Group

📅 Sep 2013- Mar 2018

📍 Arecibo, PR

- Participate and support observations with the Arecibo Planetary Radar System

Founder & Director- Arecibo Observatory Space Academy

Arecibo Observatory

📅 Aug 2013–Dec 2017

📍 Arecibo,PR

- Creation of workshops, activities and curriculum
- Develop and conduct inter-grade, inter-discipline activities utilizing external resources for integration of curriculum's with private sector and higher learning institutions
- Mentor High schools students in the development of scientific research projects focused in space exploration

Assistant Director Teacher Quality Grants Program (Astrobiology)

University of Texas Brownsville

📅 June 2011-June 2012

📍 Brownsville, TX

- Preparation of workshops, lectures and curriculum for program on Physics, Astronomy & Space Sciences
- Use of teacher and educational techniques for classroom implementation in Educators of English Language (EEL) and English as Second Language (ESL) settings

Visiting Astronomer

Vatican Observatory Group, VATT

📅 Summer 2004 & 2005

📍 Castel-Gandolfo, Italy

- Visiting astronomer gathered data with the Vatican Advanced Technology Telescope in Mount Graham AZ

CONFERENCES ATTENDED

👤 Selected Conference Proceedings

- Zambrano-Marin, L. F., M. C. Nolan, et al. (Aug. 2023). "Radar Beaming Through the Solar System's Asteroids, Comets, and Radar: Tally of 40 Years of Arecibo Observatory's Planetary Radar System Observations". In: *Asteroids, Comets, Meteors Conference*. Vol. 2851. LPI Contributions, 2553, p. 2553.
- Zambrano-Marin, Luisa (Oct. 2023). "Paying Tribute to Arecibo Observatory, a Legacy Beyond Science". In: *AAS/Division for Planetary Sciences Meeting Abstracts*. Vol. 55. AAS/Division for Planetary Sciences Meeting Abstracts, 506.09, p. 506.09.
- Zambrano Marin, Luisa et al. (2021). "2020 BX12: The Last Binary Asteroid Discovered by Arecibo Observatory". In: *AAS/Division for Planetary Sciences Meeting Abstracts*. Vol. 53. 7, pp. 207–01.
- Zambrano-Marin, L. F., E. S. Howell, et al. (Mar. 2021). "Radar Observations of Near-Earth Asteroid 2019 OK". in: *52nd Lunar and Planetary Science Conference*. Lunar and Planetary Science Conference, 2451, p. 2451.
- Zambrano-Marin, Luisa F., Ellen S. Howell, et al. (Apr. 2021). "Rapid Response Radar: Arecibo and 2019 OK". in: *7th IAA Planetary Defense Conference*, 222, p. 222.
- Zambrano-Marin, Luisa et al. (Sept. 2020). "Arecibo Science Highlights of Observatory Planetary Radar Observations: 2019-2020". In: *European Planetary Science Congress*, EPSC2020–992.
- Zambrano Marin, Luisa F et al. (2019). "Arecibo observatory radar observations: 2017-2018". In: *American Astronomical Society Meeting Abstracts# 233*. Vol. 233, pp. 347–07.
- Zambrano-Marin, Luisa F., Anne K. Virkki, et al. (Sept. 2019). "Scattering functions fits for Arecibo Observatory Planetary Radar data". In: *EPSC-DPS Joint Meeting 2019*. Vol. 2019, EPSC-DPS2019–1077, EPSC-DPS2019–1077.
- Zambrano-Marin, L. F., A. Virkki, et al. (Mar. 2018). "Scattering Laws Fit for Dual Polarization Radar Echoes of Asteroids Using Arecibo Observatory Planetary Radar Data". In: *49th Annual Lunar and Planetary Science Conference*. Lunar and Planetary Science Conference, 2569, p. 2569.
- Zambrano-Marin, LF, A Virkki, and EG Rivera-Valentin (2017). "Comparing Near-Surface and Bulk Densities of Comets Using Radar Scattering Properties". In: *Lunar and Planetary Science Conference*. 1964, p. 2835.
- Zambrano-Marin, LF, EG Rivera-Valentin, et al. (2016). "THE ARECIBO OBSERVATORY SPACE ACADEMY: 4 YEARS OF STEM ENGAGEMENT". in: *Lunar and Planetary Science Conference*. 1903, p. 2617.
- Fernanda Zambrano Marin, Luisa and MH Acuna (2007). "Juno Mission Fluxgate Magnetometer". In: *American Astronomical Society Meeting Abstracts*. Vol. 211, pp. 135–27.

PUBLICATIONS

Articles As Main author

- Zambrano-Marin, LF, SE Marshall, et al. (2024). *A Collaborative Platform for Asking about Apophis: Addressing Public Interest and Global Reach*. Vol. 3006, p. 2069.
- Zambrano-Marin, Luisa Fernanda, Ellen S. Howell, Sean E. Marshall, et al. (June 2024). *The Fastest Rotators: Near-Earth Asteroids Observed with the Arecibo Planetary Radar System*. Vol. 415. Elsevier BV, p. 116060. DOI: 10.1016/j.icarus.2024.116060. URL: <http://dx.doi.org/10.1016/j.icarus.2024.116060>.
- Zambrano-Marin, LF, MC Nolan, et al. (2023). *Radar Beaming Through the Solar System's Asteroids, Comets, and Radar: Tally of 40 Years of Arecibo Observatory's Planetary Radar System Observations*. Vol. 2851, p. 2553.
- Zambrano-Marin, Luisa Fernanda, Ellen S. Howell, Patrick A. Taylor, Sean E. Marshall, Maxime Devogèle, Anne K. Virkki, Dylan C. Hickson, Edgard G. Rivera-Valentín, Flaviane C. F. Venditti, et al. (June 2022a). *Radar and Optical Characterization of Near-Earth Asteroid 2019 OK*. vol. 3. 6, 138, p. 138. DOI: 10.3847/PSJ/ac63cd.
- – (June 2022b). *Radar and Optical Characterization of Near-Earth Asteroid 2019 OK*. vol. 3. 6. American Astronomical Society, p. 138. DOI: 10.3847/psj/ac63cd. URL: <http://dx.doi.org/10.3847/PSJ/ac63cd>.

Journal Articles as Collaborator

- Howell, Ellen S et al. (n.d.). "Radar Characterization of NEAs: Using Moderate Resolution Imaging Astrometry, and a Systematic Survey". In: ().
- Devogèle, Maxime et al. (2024). "Surface Heterogeneity, Physical, and Shape Model of Near-Earth Asteroid (52768) 1998 OR2". en. In: DOI: 10.60692/SKPBT-ETT97. URL: <https://gresis.osc.int//doi/10.60692/skpbt-ett97>.
- Rivera-Valentín, Edgard et al. (2024). "The data for Radar Circular Polarization Ratio of Near-Earth Asteroids: Links to Spectral Taxonomy and Surface Processes". en. In: DOI: 10.5281/ZENODO.12113064. URL: <https://zenodo.org/doi/10.5281/zenodo.12113064>.
- Marshall, SE et al. (2023). "Arecibo Observatory Asteroid Projects". In: *LPI Contributions* 2851, p. 2563.
- Venditti, FCF et al. (2023). "The Ones that Got Away? Investigating Binary NEAs Previously Not Identified in Radar Observations". In: *LPI Contributions* 2851, p. 2160.
- Venditti, Flaviane C. F. et al. (Sept. 2023a). "The Arecibo Observatory's legacy and future radar capabilities". In: *Acta Astronautica* 210, pp. 610–615. DOI: 10.1016/j.actaastro.2023.05.023.
- – (Sept. 2023b). "The Arecibo Observatory's legacy and future radar capabilities". In: *Acta Astronautica* 210, pp. 610–615. ISSN: 0094-5765. DOI: 10.1016/j.actaastro.2023.05.023. URL: <http://dx.doi.org/10.1016/j.actaastro.2023.05.023>.
- Aponte-Hernández, B, EG Rivera-Valentín, and LF Zambrano-Marin (2022). "Authentic Partnerships: The Experience Of The Arecibo Observatory Space Academy (AOSA)". in: *LPI Contributions* 2679, p. 2040.
- López-Oquendo, Andy et al. (Aug. 2022). "Physical Characterization of 2015 JD1: A Possibly Inhomogeneous Near-Earth Asteroid". In: *The Planetary Science Journal* 3.8, p. 189. ISSN: 2632-3338. DOI: 10.3847/psj/ac7e4f. URL: <http://dx.doi.org/10.3847/PSJ/ac7e4f>.
- Reddy, Vishnu et al. (Mar. 2022). "Near-earth asteroid (66391) Moshup (1999 KW4) observing campaign: Results from a global planetary defense characterization exercise". In: 374, 114790, p. 114790. DOI: 10.1016/j.icarus.2021.114790.
- Nolan, Michael, Patrick Michel, Flaviane C. F. Venditti, et al. (May 2021a). "Near-Earth Objects". In: 53, 220, p. 220. DOI: 10.3847/25c2cfef.babe6f0d.
- Nolan, Michael, Patrick Michel, Flaviane CF Venditti, et al. (2021b). "Near-Earth Objects". In: *Bulletin of the American Astronomical Society* 53.4, p. 220.
- Shepard, Michael K. et al. (July 2021). "Asteroid 16 Psyche: Shape, Features, and Global Map". In: *The Planetary Science Journal* 2.4, p. 125. DOI: 10.3847/psj/abfdb. URL: <https://doi.org/10.3847/2Fpsj%2Fabfdb>.
- Virkki, Anne, Sean E. Marshall, et al. (2021). "Delay-Doppler images of near-Earth asteroids observed using Arecibo S-band planetary radar system". In: DOI: 10.6084/M9.FIGSHARE.14710650.V1. URL: https://figshare.com/articles/figure/Delay-Doppler_images_of_near-Earth_asteroids_observed_using_Arecibo_S-band_planetary_radar_system/14710650/1.
- Yang, Chaowei Phil et al. (May 2021). "Critical Data Identification, Information Communication, and Readily Available Knowledge Base for Effectively Mitigating Impact of Near Earth Objects". In: 53, 404, p. 404. DOI: 10.3847/25c2cfef.28292b50.
- Brozović, Marina et al. (Apr. 2020). "Arecibo Radar Astrometry of the Galilean Satellites from 1999 to 2016". In: 159.4, 149, p. 149. DOI: 10.3847/1538-3881/ab7023.

- Virkki, Anne, L Zambrano-Marin, et al. (2020). "2020 BX_12". In: *Central Bureau Electronic Telegrams* 4725, p. 1.
 - – (Feb. 2020). "2020 BX_12". In: *Central Bureau Electronic Telegrams* 4725, p. 1.
 - Roshi, Anish et al. (2019). "Arecibo Observatory in the Next Decade". In: *Bulletin of the American Astronomical Society* 51.7, p. 244.
 - Rozek, A. et al. (2019). "Shape model and spin-state analysis of PHA contact binary (85990) 1999 JV6 from combined radar and optical observations". In: *Astronomy and Astrophysics* 631.
 - Taylor, Patrick A et al. (2019). "Arecibo radar observations of near-Earth asteroid (3200) Phaethon during the 2017 apparition". In: *Planetary and Space Science* 167, pp. 1–8.
 - Virkki, AK, SE Marshall, et al. (2019). "2016 AZ_8". In: *Central Bureau Electronic Telegrams* 4593, p. 1.
 - Bhiravarasu, Sriram S. et al. (Dec. 2018). "Arecibo Radar Observations of Dwarf Planet 1 Ceres During the 2018 Apparition". In: *Research Notes of the American Astronomical Society* 2.4, 232, p. 232. DOI: 10.3847/2515-5172/aaf815.
 - Brozovic, Marina et al. (July 2018). "Goldstone radar observations of triple near-Earth asteroid 3122 Florence". In: 42, B1.1-80-18, B1.1-80-18.
 - Virkki, A, P Taylor, et al. (2017). "Near-surface bulk densities of asteroids derived from dual-polarization radar observations". In: *Eur. Planet. Sci. Congr. 11.(abstract EPSC2017-750)*.
 - Giorgini, J. D. et al. (Oct. 2014). "(2340) Hathor". In: *iaucirc* 9272, p. 1.
 - Elliot, J. L. et al. (June 2010). "Size and albedo of Kuiper belt object 55636 from a stellar occultation". In: 465.7300, pp. 897–900. DOI: 10.1038/nature09109.
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