
SARAH VILLANOVA BORGES

svborges@uwm.edu

EDUCATION

- Aeronautical Institute of Technology (ITA), Brazil** *Mar 2012 – Dec 2017*
Bachelor's in Aeronautical Engineering, with a Minor in Physical Engineering
- Aeronautical Institute of Technology (ITA), Brazil** *Mar 2017 – Dec 2018*
Master of Science in Physics
Thesis: "Emission Models of Soft Gamma-Ray Repeaters/Anomalous X-Ray Pulsars Described as White Dwarfs"
- University of Wisconsin-Milwaukee (UWM), USA** *Jan 2021 – Present*
PhD Student in Physics — Expected Defense: Oct 2025 (date TBD)

OTHER RESEARCH EXPERIENCES

- European Southern Observatory (ESO) - Chile** *Mar 2019 - Jul 2019*
Visiting Graduate Student
- National Institute for Space Research (INPE) - Brazil** *Aug 2014 - Feb 2017*
Undergraduate research

SELECTED CONFERENCES

Oral presentations:

- Rise Time 2024, Purdue, Indiana, USA, Aug 2024. "Planetary Nebulae shaping during Common Envelope".
- XVII Marcel Grossman Meeting, Online, Jul 2024. "Estimating the optical/infrared magnitudes of ultra-slow radio pulsars as white dwarfs".
- 32nd Midwest Relativity Meeting, Rochester, Michigan, USA Oct 2022."Do magnetars have a disk? An X-rays/Infrared correlation for Soft-Gamma Ray Repeaters and Anomalous X-ray Pulsars".
- XVI Marcel Grossman Meeting, Online, Jul 2021. "A study of the infrared emission of SGR/AXPs in a disk scenario and its implications for their origin".
- XV Marcel Grossman Meeting, Rome, Italy, Jul 2018. "Can the anomalous X-ray pulsar 4U 0142+61 be described as an accreting white dwarf?".
- XLII Brazilian Astronomical Society (SAB) meeting, São Paulo, Brazil, Jul 2018. "Can the anomalous X-ray pulsar 4U 0142+61 be described as an accreting white dwarf?".

Poster presentations:

- XV Hadron Physics meeting, São José dos Campos, Brazil, Sep 2021. "Can the anomalous X-ray pulsar 4U 0142+61 be described as an accreting white dwarf?".
- XLIII Brazilian Astronomical Society (SAB) meeting, São Paulo, Brazil, Sep 2019. "Can the infrared emission of all Soft Gamma-Ray Repeaters and Anomalous X-ray Pulsars be explained by an irradiated disk?".
- XLI Brazilian Astronomical Society (SAB), São Paulo, Brazil, Sep 2017. "Can Soft Gamma-Ray Repeaters and Anomalous X-Ray Pulsars be described as white dwarfs?".

SEMINARS

- ESO, Chile**, Jul 11th 2019: "Can the infrared emission of all Soft Gamma-Ray Repeaters and Anomalous X-ray Pulsars be explained by an irradiated disk? "
- INPE, Brazil**, Aug 4th 2020: "A Magnetic White Dwarf Accretion Model for the Anomalous X-Ray

Pulsar 4U 0142+61"

– **UWM, USA**, Nov 4th 2022: "Do magnetars have a disk? An X-ray/Infrared correlation for Soft-Gamma Ray Repeater and Anomalous X-ray Pulsars"

SUMMER SCHOOLS AND WORKSHOPS

- GROWTH Astronomy School 2020 - August 17-21 2021 - Online
- N-Body Workshop - June 27 - July 1 2022 - Flatiron Institute, USA
- MESA Summer School - August 8-12 2022 - UC Santa Barbara, USA
- CiberCATSS - June 27 - July 1 2023 - UW Milwaukee, USA

SCHOLARSHIPS AND FELLOWSHIPS

- Spring 2023/2024 - Victor Vega Scholarship, USA (UWM)
- Summer 2022 - David Lichtman Memorial Fellowship, USA (UWM)
- Mar 2017 – Jul 2018 - Graduate scholarship from Coordination for the Improvement of Higher Education Personnel, Brazil (CAPES).
- Dec 2016 – Feb 2017 - Undergraduate Scholarship from Foundation for Research Support of the State of São Paulo, Brazil (FAPESP);
- Aug 2014 – Nov 2016 - Undergraduate Scholarship from National Institute of Spatial Research/Institutional Scholarship Program, Brazil (PIBIC/INPE/CNPq);

TEACHING EXPERIENCE

Graduate Teaching Assistant - UWM

- Spring 2021 - ASTRON 104 (Astronomy Laboratory) - Grader
- Spring 2021 - PHYSICS 422 (Electricity and Magnetism II) - Grader
- Fall 2021/Fall 2022/Spring 2023 - PHYSICS 120 (non-calculus Mechanics) - Discussion Sections
- Spring 2022 - PHYSICS 122 (non-calculus Electricity and Magnetism) - Discussion Sections

OTHER PROFESSIONAL EXPERIENCE

Brazilian Air Force

Jan 2012 - Nov 2012

Completed mandatory military service as part of ITA's first-year undergraduate program.

OUTREACH

Women in STEM – ITA, Brazil

Mar 2016 – Oct 2017

A partnership between ITA and Johnson & Johnson to inspire young girls to pursue STEM careers. As a member, I helped at engineering workshops and gave science talks at local high schools.

Coffeeshop Astrophysics

2021 – Present

Monthly public talks by UWM physics graduate students at a local coffee shop. As a regular speaker, I co-presented the following talks:

- "How Do Stars Float? Great Questions from Kids You Might Not Know the Answer To" Sept 24, 2022
- "The Science of Science Fiction" – May 6, 2023
- "Ancient Astronomy" – Sept 23, 2023
- "The Last 10 Years of Astrophysics" – May 11, 2024
- "Galaxies: From Cradle to Grave" – Sept 28, 2024
- "Auroras: Cosmic Light Show" – Mar 29, 2025

Recordings of all talks are available on the Coffeeshop Astrophysics YouTube channel:

<https://www.youtube.com/@coffeeshopastrophysics4696>