

# Archana Aravindan

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## EDUCATION

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Ph.D. in Physics and Astronomy (in progress)  
Riverside, CA

October 2020 -Present  
University of California, Riverside

Master of Science in Physics (5 year Integrated Course)  
Puducherry, India

July 2015 - May 2020  
Pondicherry University

Thesis: Modelling the Torus of NGC 1365 using Near-Infrared Emission Spectral Energy Distribution Data

## RESEARCH EXPERIENCE

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Doctoral Research  
University of California, Riverside

October 2020 - Present

- Worked on comparing the properties of outflows from star-forming dwarf galaxies and dwarf galaxies that host an Active Galactic Nucleus (AGN).
- Current and Future projects: Mid-Infrared Variability of Intermediate-Mass Black Holes
- Advisor: Prof. Gabriela Canalizo

Master's Research  
Pondicherry University

July 2019 - May 2020

- Recreated the Spectral Energy Distribution of the galaxy NGC 1365 using simulations, specifically in the Near-Infrared regime with SKIRT- a radiative transfer code that simulates dusty astrophysical systems.
- Advisor: Dr. K.V.P. Latha

Summer Intern  
Indian Institute of Astrophysics-Kodaikanal Solar Observatory

May 2019 - July 2019

- Magnetic Helicity as a flux storage device and its eruption from solar active regions.
- Supervisor: Dr. Vemareddy Panditi, Assistant Professor & DST-INSPIRE fellow

Visiting Summer Student  
Inter University Centre for Astronomy and Astrophysics (IUCAA)

May 2018 - July 2018

- An analysis of Image Detection techniques in Astronomy using Source Extractor and IRAF
- Supervisor: Dr. Sonali Sachdeva, Post Doctoral Fellow

## PUBLICATIONS

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- Archana Aravindan, Weizhe Liu, Gabriela Canalizo, Sylvain Veilleux, et al. 'A Comparison of Outflow Properties in AGN Dwarfs versus Star-forming Dwarfs', The Astrophysical Journal, Volume 950, Number 1
- Michael Reefer, Shobita Satyapal, Remington O. Sexton, Nathan J. Secrest, et al. (including Archana Aravindan) 'Nuclear Activity in the Low-metallicity Dwarf Galaxy SDSS J0944-0038: A

## CONFERENCE PRESENTATIONS

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### Oral Presentation

AGN vs. Stellar Feedback in dwarf galaxies (Virtual) September 2022

Origin, growth, and feedback of black holes in dwarf galaxies, San Sebastian, Spain

An Integral Field Spectroscopy Study of Gas Dynamics In Dwarf Galaxies: August 2022  
A New Tool To Detect Elusive Black Holes

Eighth Annual GMT Community Science Meeting: Black Holes at all scales, Sedona, Arizona

### Poster Presentation

A Comparison of Outflow Properties in Star Forming vs. AGN Dwarf galaxies January 2023  
241st Meeting of the American Astronomical Society, Seattle, Washington

AGN vs. Stellar Feedback in Dwarf Galaxies September 2022  
Keck Science Meeting 2022, Caltech, Pasadena

## OBSERVING EXPERIENCE

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10m-Keck Telescope 2 nights, April 2023 and May 2023

W.M. Keck Observatory

- Observed remotely with NIRES
- A search for IMBH using MIR variability

10m-Keck Telescope 4 nights, March 2022 and May 2022

W.M. Keck Observatory

- Observed remotely with NIRC2 and OSIRIS
- A Pathfinder Study in the Near-Infrared to Identify Dual AGN

10m-Keck Telescope 2 nights, September 2021

W.M. Keck Observatory

- Observed remotely with NIRC2 and NIRES
- Near Infrared imaging and spectroscopy of dwarf mergers.

10m-Keck Telescope 2 nights, March 2021

W.M. Keck Observatory

- Observed remotely with KCWI
- Integral Field Spectroscopy of Star-Forming Dwarf Galaxies in visible wavelengths.

## HONOURS AND AWARDS

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Outstanding Junior Graduate Student Researcher, UCR Physics and Astronomy June 2023

Outstanding Teaching Assistant, UCR May 2023

Co-Winner, Space Diplomacy Hackathon, NSPN and Duke University April 2022

Dean's Distinguished Fellowship, UCR Jan 2021 - Jan 2022

Merit Scholarship, Pondicherry University Jan 2016 - May 2020

## MENTORING AND TEACHING EXPERIENCE

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Member, Physics & Astronomy Peer Mentorship (PAPER) April 2023 - Present  
University of California, Riverside

- Student-led group that focuses on providing peer mentorship and support within the Physics and Astronomy Department at UCR

International Peer Mentor September 2022 - Present  
University of California, Riverside

- Mentoring two international first-year graduate students in Physics and Astronomy with a focus on providing transitional support

Teaching Assistant January 2021 - Present  
University of California, Riverside

- Discussion sections for General Astronomy for Non-STEM majors
- Laboratory sections for General Physics for Engineering and Pre-medical Undergraduates.

High School Tutor July 2018 - March 2020

- Taught Math and Physics to high school students.

## OUTREACH AND SCIENCE COMMUNICATION

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Author, Astrobites January 2023 - Present  
Condensed scientific papers into bite-sized articles to facilitate easier access to technical work for the public.

- [What breathes fire into an AGN?](#)
- [The Curious Case of a Spectacular Spectrum](#)
- [Uh oh, some Black Holes are experiencing Middle Child Syndrome!](#)

Attendee, Comscicon Flagship 2023 July 2023

Instructor, Camp Highlander July 2022 - August 2022  
Astro Club

- Lead several activities to teach Astronomy to children aged 6-15, such as making a Gravity Simulator and models of the Multi-wavelength Universe.
- Worked with under-served youth and military-connected kids

Podcast Guest, CosmicVoice@Spaceonova November 2021  
Unboxing Astrophysics with Archana Aravindan, 5th November 2021 ([Listen here!](#))

## DIVERSITY, EQUITY, INCLUSION (DEI) ACTIVITIES

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Member October 2021 - Present  
Physics Organization for Women and Under-represented (POWUR)

- Vice-President (2023 - Current), Treasurer (2022 - 2023)
- DEI focused group to support minorities in the Physics and Astronomy department at UCR
- Organized monthly Women in Physics Coffee Socials for graduate women to foster community and create a safe space.
- Lead a book club session discussing 'The Only Woman in the Room' by Eileen Pollock with high school physics teachers in Riverside County to come up with effective strategies on how to encourage more girls to take up a career in physics.

- Helped organize community-building activities such as art nights, kick-off events, and support groups for first-year graduate students to navigate their comprehensive exams

Volunteer

January 2016 - August 2019

Ed for All, Puducherry, India

- President (2018-2019)
- Taught English-speaking skills to underprivileged students from low-income backgrounds.
- Provided training to improve job skills to empower the students to pursue high-paying job opportunities post high-school

## SCIENCE POLICY

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Science Policy Memo for the Day One Project, Federation of American Scientists  
([One Small Step: Anticipatory Diplomacy In Outer Space](#))

June 2023

Chair of the Curriculum and Events committee  
UCR Science to Policy

November 2021-Present

Certificate Course in Science to Policy  
UCR

March 2021

- 10-week certificate course for graduate students that aimed at communicating research to policy-makers.
- Wrote op-eds, policy briefs, and policy memos and presented a policy pitch to legislative members.