

Joaquín Hernández-Yévenes

ASTRONOMER

Based in Talcahuano, Chile

Alumnus of Universidad de Concepción, pursuing MSc

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Education

Universidad de Concepción

Concepción, Chile

MASTER DEGREE (MSC, ASTRONOMY)

Mar, 2022 – Jan, 2024 (expected)

- Thesis title: WISE2MBH: A simple algorithm for morphology, bulge fraction and black hole mass estimation using WISE catalogs
- Advisor: DR. NEIL NAGAR

Universidad de Concepción

Concepción, Chile

BACHELOR DEGREE (BSC, 2021) AND PROFESSIONAL TITLE (2023) IN ASTRONOMY

Mar, 2018 – Aug, 2023

Research Internships

WISE2MBH algorithm and ngEHT prospects

BHI at Harvard, Massachusetts, USA

WORKGROUP: DOMINIC PESCE, ANGELO RICARTE, YURI KOVALEV AND OTHERS

Mar – Apr, 2023

- Late stage development of the WISE2MBH algorithm that estimate supermassive black hole masses from WISE data.
- Explore uses for EHT, ngEHT, and ALMA to present proposals based on the algorithm estimates and population predictions.
- Discussion about WISE2MBH parent and final sample, and possible interest of the community.
- Discussion over super massive black hole binary candidates and strategies to detect them.

Publications

- 3 MULTI-FREQUENCY FUNDAMENTAL PLANE OF SMBH ACCRETION IN THE EHTER SAMPLE
Arratia V., Nagar N., Bandyopadhyay B. & Hernández-Yévenes J.
in prep. 2024
- 2 WISE2MBH: A SIMPLE ALGORITHM FOR MORPHOLOGY, BULGE FRACTION AND BLACK HOLE MASS ESTIMATION USING WISE CATALOGS
Hernández-Yévenes J., Nagar N., Arratia V. & Jarrett T.H.
Submitted to MNRAS Sep, 2023
- 1 EVENT HORIZON AND ENVIRONS (ETHER): A CURATED DATABASE FOR EHT AND NGEHT TARGETS AND SCIENCE
Ramakrishnan V., Nagar N., Arratia V., Hernández-Yévenes J., Pesce D.W., Nair D.G., Bandyopadhyay B., Medina-Porcile C., Krichbaum T.P., Doleman S., Ricarte A., Fish V.L., Blackburn L., Falcke H., Bower G. & Natarajan P.
Galaxies Jan, 2023

Successful PI and Co-PI observing proposals

- 6 TOWARDS RESOLVING ORBITING BINARY SMBH, PLUS SHADOWS, JETS, AND ACCRETION FLOWS OF SINGLE SMBH: ACA FLUXES
PI, 72.6 hours (7M), Priority C
ALMA Cycle 10 2023
- 5 IMAGING M84 AND SOMBRERO AT < 50 GRAVITATIONAL RADII: JETS AND ACCRETION INFLOW
Co-PI (PI: Dhanya Nair), 12 hours (12M), Priority B
ALMA Cycle 10 2023
- 4 A SAMPLE OF SMBH SHADOWS, RINGS, ACCRETION FLOWS AND JET BASES: EXPLORATORY EHT+ALMA FLUX MEASUREMENTS
Co-PI (PI: Neil Nagar), 45 hours (12M), Priority B
ALMA Cycle 10 2023
- 3 A SAMPLE OF BLACK HOLES AT < 100 RG SCALES: ACCRETION FLOWS, JETS, AND SHADOWS
Co-PI (PI: Dhanya Nair), 22 hours (7mm), Priority A
VLBA 2023A 2022
- 2 A SAMPLE OF SMBH SHADOWS, RINGS, ACCRETION FLOWS AND JET BASES: EXPLORATORY EHT+ALMA FLUX MEASUREMENTS
Co-PI (PI: Neil Nagar), 36 hours (12M), Priority B
ALMA Cycle 9 2022
- 1 NGC4261: THE 2ND JET AT < 50 GRAVITATIONAL RADII (AND THE 3RD BLACK HOLE SHADOW?)
Co-PI (PI: Neil Nagar), 6 hours (12M), Priority B
ALMA Cycle 9 2022

Teaching

Extragalactic Astronomy (Assistantship)

PROFESSOR: DR. RICARDO DEMARCO

Universidad de Concepción,
Concepción, Chile

Semester II, 2023

Radioastronomy (Assistantship)

PROFESSOR: DR. NEIL NAGAR

Universidad de Concepción,
Concepción, Chile

Semester II, 2023

Talks, Posters and Outreach

Nov, 2023 **Using WISE cataloged data for morphology, bulge fraction and black hole mass estimation**, Conference Poster

XVII RRLA-LARIM, Montevideo,
Uruguay

Nov, 2022 **La nueva generación del Telescopio Horizonte de Eventos (ngEHT) y Chile**, Outreach Talk

Universidad de Concepción,
Concepción, Chile

Leadership & Community Service

WISE2MBH algorithm (package and repository)

DEVELOPER AND MAINTAINER

[GitHub](#)

2023-today

SciCat: Support group created by and for students

FOUNDER, CONTENT CREATOR AND COMMUNITY MANAGER

[Instagram](#) / [YouTube](#)

2020-2022

Workshops & Certificates

2023 **Certification in Machine Learning with Python**, freeCodeCamp

[Certificate](#)

2022 **Certification in Data Analysis with Python**, freeCodeCamp

[Certificate](#)

2022 **Certification in Scientific Computing with Python**, freeCodeCamp

[Certificate](#)

2022 **Certification in Cloud Computing**, Google & Esc. de Org. Industrial

2021 **School of Physics of the Master in Physical Sciences**, Universidad del Bío-Bío

2019 **Advanced (C1) English Course**, SNBP & BiblioRedes

Skills

Programming Python, TeX, git, Bash

Data analysis NumPy, Pandas, Matplotlib, Seaborn, SciPy, scikit-learn, Tensorflow

Photography Gimp, Inkscape

Video Olive

Other

Citizenship Chilean

Birth year 1999 (24 years old)

Languages Spanish (native), English (fluent)