

MAIA ALIA S. MARTINEZ

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Education

Northwestern University

Expected 2027

Ph.D. Astronomy

Advisor: Frederic A. Rasio, rasio@northwestern.edu

Columbia University

2019

B.A. Astrophysics

Publications

First- and Second-Author Publications

Intermediate Mass Black Hole Binaries as Gravitational Wave Sources from Binary–Binary Encounters in Dense Star Clusters

Zhou, Y., Martinez, M. A. S., Guo, P., Rasio, F. A., 2026, in prep.

Getting Tilted: Random Walk of Binary Black Hole Spin-Orbit Alignment in Dense Star Clusters

Martinez, M. A. S., O'Connor, C. E., Kiröglu, F., Rasio, F. A., 2026, submitted to ApJ

Survival Analysis of Intermediate-Mass Black Holes in Dense Star Clusters

Martinez, M. A. S., Gonzalez Prieto, E., Rasio, F. A., 2026, submitted to ApJ

On the Mass Ratio Distribution of Black Hole Mergers in Triple Systems

Martinez, M. A. S., Rodriguez, C. L., Fragione, G., 2022, ApJ, 937, 78

Black Hole Mergers from Hierarchical Triples in Dense Star Clusters

Martinez, M. A. S., Fragione, G., Kremer, K., et al., 2020, ApJ, 903, 67

Demographics of Triple Systems in Dense Star Clusters

Fragione, G., Martinez, M. A. S., Kremer, K., et al., 2020, ApJ, 900, 16

Orphaned exomoons: Tidal detachment and evaporation following an exoplanet-star collision

Martinez, M. A. S., Stone, N. C., Metzger, B. D., 2019, MNRAS, 489, 5119

Contributing Author Publications

Black hole mergers from dense star clusters with realistic binary populations

O'Connor, C. E. et al. (including Martinez, M. A. S.), 2026, submitted to ApJ

Intermediate-Mass Black Holes on the Run from Young Star Clusters

González Prieto, E. et al. (including Martinez, M. A. S.), 2022, ApJ, 940, 13

GW190412 as a Third-generation Black Hole Merger from a Super Star Cluster

Rodriguez, C. L. et al. (including Martinez, M. A. S.), 2020, ApJL, 896, L10

Seminars/Colloquia

Special Seminar University of California Los Angeles	July 2026
Dynamics Group Meeting University of Wisconsin Madison	June 2026
CIERA Theory Group Meeting Northwestern University	Feb 2026
Special Seminar University of Colorado Boulder	July 2024
CIERA Theory Group Meeting Northwestern University	Oct 2023
CIERA Theory Group Meeting Northwestern University	Feb 2023
Astronomy Seminar Columbia University	Dec 2022

Conferences

57th AAS DDA Meeting Chicago, IL	June 2026
55th AAS DDA Meeting Toronto, Canada	May 2024
IMBHs: The Dawn of a Revolutionary Era San Pedro, Belize	Dec 2023
MODEST-23: Star Clusters in the Post-Pandemic Era Evanston, IL	Aug 2023
54th AAS DDA Meeting East Lansing, MI	May 2023
AAS HEAD Meeting Waikoloa, HI	Mar 2023
IMBHs: New Science from Stellar Evolution to Cosmology San Juan, PR	May 2022
Dynamical Formation of GW Sources Aspen, CO	Jan 2022
Triple Evolution and Dynamics-3 Evanston, IL (Virtual)	Mar 2021
Exomoon Discussion Event New York, NY (Virtual)	Nov 2020

Workshops

NBIA Summer School on Gravitational Wave Astrophysics

Aug 2021

Copenhagen, Denmark (Virtual)

Mentorship

Yiqiu Zhou

Northwestern University 2024–Present

Co-mentored with Prof. Frederic Rasio

Master's Thesis: Intermediate-mass Black Hole Binary Formation through Dynamical Interactions in Dense Star Clusters

Service

Cluster Monte Carlo Collaboration

Treatment of strong fewbody interactions, spin-orbit misalignment, triple systems

Peer Reviewer

Astronomy & Astrophysics

Outreach

CIERA REACH High School Summer Program

2021-2025

Co-organizer, coding lesson developer, coding tutor, and 1-on-1 project mentor

Chicagoland Astronomy Teacher Workshops

2023

Organizer, speaker for teacher professional development workshops co-organized with the Baxter Center for Science Education

Chicago Montessori School Visit

Apr 2023

The Baxter Symposium

Mar 2023

Session leader for teacher professional development workshop

Honors and Awards

CIERA Board of Visitors Fellow

2022-2023

NSF Graduate Research Fellowship, Honorable Mention

2021

Columbia University, I. I. Rabi Fellow

2015-2019