Tomás Ahumada

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Education

University of Maryland at College Park — **College Park, MD**
Ph.D. in Astronomy — *2022 (Expected)*

University of Maryland at College Park (UMD) — **College Park, MD**
M.Sc. in Astronomy — *Sept 2019*
- Graduate Teaching assistant to: Solar System Astronomy and Stars and Stellar Systems.

Pontificia Universidad Católica de Chile (PUC) — **Santiago, Chile**
B.Sc. in Astronomy — *July 2016*
- *Senior Thesis*: Using Machine Learning to identify quasars on ATLAS fields.
- Teaching assistant to: Modern Physics, General Physics, Astronomy workshop and various labs.

Research Experience

NASA Goddard Space Flight Center — **Greenbelt, MD**
Graduate Research Assistant — *Mar 2018 – Present*

University of Maryland at College Park — **College Park, MD**
Graduate Research Assistant — *Mar 2018 – Present*

Gemini Observatory — **La Serena, Chile**
Intern — *Feb 2017 – Aug 2017*

Pontificia Universidad Católica de Chile — **Santiago, Chile**
Undergraduate Research Assistant — *Mar 2016 – Dec 2016*

Cerro Tololo Inter-American Observatory (CTIO) — **La Serena, Chile**
Research Experience for Undergraduates — *Jan 2016 - Mar 2016*

Talks, conferences and meetings

Discovery and confirmation of the shortest GRB from a collapsar — **Invited talk**
16th Marcel Grossmann meeting, Rome, Italy — *June 2021*

Discovery and confirmation of the shortest GRB from a collapsar — **Virtual talk**
ZTF II team meeting — *May 2021*

In the search of the optical counterpart of SGRBs — **Invited talk**
ZTF-Caltech/SVOM topical workshop on GRBs, Virtual meeting — *May 2021*

ZTF10abwysqy, the shortest gamma-ray burst with a collapsar origin — **Caltech, Talk**
ZTF team meeting, Pasadena, CA, USA — *October 2020*

In search of the optical counterpart of short gamma-ray bursts — **AAS, Talk**
American Astronomical Society meeting, Honolulu, HI, USA — *January 2020*

Astrobitos - The Astrobites in Spanish — **AAS, Poster**
American Astronomical Society meeting, Honolulu, HI, USA — *January 2020*

The Extended Globular Cluster System of NGC3923 — **IIT Bombay, Talk**
GROWTH team meeting, Mumbai, India — *December 2018*

The Extended Globular Cluster System of NGC3923 — **AAS, Poster**
American Astronomical Society meeting, Grapevine, TX, USA — *January 2017*

Using Machine Learning to identify quasars on ATLAS fields **PUC, Talk**
ANILLO workshop 2016, Santiago, Chile *December 2016*

The Extended Globular Cluster System of NGC3923 **CTIO, Talk**
REU Workshop, Cerro Tololo Inter-American Observatory, La Serena, Chile *March 2016*

Teaching and Mentoring Experience

In addition to the Teaching Assistanships I held at PUC and UMD.

Organizer *August 2021*
Lead TA in the ZTF summer school. I participated in the recruiting, organization and lecturing as a TA during the summer school.

Lecturer *July 2021*
Lecturer in the Python modules at the PAARC Python Workshop.

Lecturer *January 2021*
Lecturer in the Python modules at the GRADMAP Winter Workshop.

Mentor *January 2021*
Mentor of Lenin Nolasco and Maria-Clara Heringer at the GRADMAP Winter Workshop.

Graduate Teaching Assistant *November 2020*
TA at the virtual GROWTH school.

Physics Teacher *Apr 2014 – Jun 2016*
Teach physics in a free online-streaming college preparation course, available on Youtube

Telescope time

Allocated time

- Lowell Discovery Telescope (9 half nights in total) co-Investigator during 2021A, 2021B
- Gemini North (24hr) as Principal Investigator during 2021A.
- Las Cumbres Observatory (27hr) as co-Investigator during 2019A, 2019B, 2020A, and 2020B.
- Dark Energy Camera (12hr) as co-Investigator during 2020A.
- SOAR telescope (12hr) as co-Investigator during 2020A.

Observing experience

- CTIO 0.9m
- Kitt Peak 2.1m (KPED)
- Keck I
- Gemini North and Gemini South
- Lowell Discovery Telescope

Volunteering and Community Service

NGO TECHO *Apr 2013 – Jun 2017*
- Lead the volunteering intervention in a suburban area in the Santiago Metropolitan area.
- Tutor teenagers from low economic backgrounds in their school assignments.

Astronomy community service
- Content writer in the astronomy science blog Astrobitos since January 2018.
- Undergraduate representative and Academic Advisor of the Astronomy Undergraduate Program, 2015.
- Millennium Institute of Astrophysics instructor for science fairs.
- Volunteer at the Smithsonian National Air and Space Museum during 2018, Washington DC.
- Volunteer at Skype with a scientist. Youtube link

Skills

- Programming Languages: Python, C.
- OS: Linux, MacOS, Windows.
- Languages: Native in Spanish, full professional proficiency in English (TOEFL score 102), basic knowledge of Italian, Portuguese and French.

Publications

In addition to the articles listed bellow, I have contributed to another 80+ (20+ fist author) non referred publications, i.e. GCN, ATel. See the full list here.

First to third author

1. Michael W Coughlin, **Tomás Ahumada**, et al. 2900 square degree search for the optical counterpart of short gamma-ray burst grb 180523b with the zwicky transient facility. *Publications of the Astronomical Society of the Pacific*, 131(998):048001, 2019.
2. Michael W Coughlin, **Tomás Ahumada**, et al. Growth on s190425z: searching thousands of square degrees to identify an optical or infrared counterpart to a binary neutron star merger with the zwicky transient facility and palomar gattini-ir. *The Astrophysical Journal Letters*, 885(1):L19, 2019.
3. Mansi M Kasliwal, Shreya Anand, **Tomás Ahumada**, et al. Kilonova luminosity function constraints based on zwicky transient facility searches for 13 neutron star merger triggers during o3. *The Astrophysical Journal*, 905(2):145, 2020.
4. **Tomás Ahumada**, Leo Singer, Shreya Anand, Michael W Coughlin, Mansi M Kasliwal, et al. Discovery and confirmation of the shortest gamma ray burst from a collapsar. *Nature astronomy*, 7, 2021.

Significant contribution

6. Shreya Anand, Michael W Coughlin, Mansi M Kasliwal, Mattia Bulla, **Tomás Ahumada**, et al. Optical follow-up of the neutron star–black hole mergers s200105ae and s200115j. *Nature astronomy*, 5(1):46–53, 2021.
7. Igor Andreoni, Daniel A Goldstein, Shreya Anand, Michael W Coughlin, Leo P Singer, **Tomás Ahumada**, et al. Growth on s190510g: Decam observation planning and follow-up of a distant binary neutron star merger candidate. *The Astrophysical Journal Letters*, 881(1):L16, 2019.
8. Igor Andreoni, Erik C Kool, Ana Sagués Carracedo, Mansi M Kasliwal, Mattia Bulla, **Tomás Ahumada**, et al. Constraining the kilonova rate with zwicky transient facility searches independent of gravitational wave and short gamma-ray burst triggers. *The Astrophysical Journal*, 904(2):155, 2020.

Contributed publications

8. Mouza Almualla and others (includes **Tomás Ahumada**). Towards regular serendipitous detections of kilonovae by wide-field surveys. *arXiv preprint arXiv:2011.10421*, 2020.
9. Igor Andreoni, Michael W. Coughlin, and others (includes **Tomás Ahumada**). Fast-transient Searches in Real Time with ZTFReST: Identification of Three Optically-discovered Gamma-ray Burst Afterglows and New Constraints on the Kilonova Rate. *arXiv e-prints*, page arXiv:2104.06352, April 2021.
10. Igor Andreoni and others (includes **Tomás Ahumada**). Growth on s190814bv: Deep synoptic limits on the optical/near-infrared counterpart to a neutron star–black hole merger. *The Astrophysical Journal*, 890(2):131, 2020.

11. Bryce T Bolin and others (includes **Tomás Ahumada**). Characterization of temporarily captured minimoon 2020 cd3 by keck time-resolved spectrophotometry. *The Astrophysical Journal Letters*, 900(2):L45, 2020.
12. Michael W Coughlin and others (includes **Tomás Ahumada**). The kitt peak electron multiplying ccd demonstrator. *Monthly Notices of the Royal Astronomical Society*, 485(1):1412–1419, 2019.
13. Daniel A Goldstein and others (includes **Tomás Ahumada**). Growth on s190426c: Real-time search for a counterpart to the probable neutron star–black hole merger using an automated difference imaging pipeline for decam. *The Astrophysical Journal Letters*, 881(1):L7, 2019.
14. Siddharth R. Mohite, Priyadarshini Rajkumar, Shreya Anand, and others (includes **Tomás Ahumada**). Inferring kilonova population properties with a hierarchical Bayesian framework I : Non-detection methodology and single-event analyses. *arXiv e-prints*, page arXiv:2107.07129, July 2021.
15. Daniel A Perley and others (includes **Tomás Ahumada**). The fast, luminous ultraviolet transient at2018cow: extreme supernova, or disruption of a star by an intermediate-mass black hole? *Monthly Notices of the Royal Astronomical Society*, 484(1):1031–1049, 2019.
16. Josiah N Purdum and others (includes **Tomás Ahumada**). Time-series and phasecurve photometry of episodically-active asteroid (6478) gault in a quiescent state using apo, growth, p200 and ztf. *arXiv preprint arXiv:2102.13017*, 2021.
17. Robert Stein and others (includes **Tomás Ahumada**). A high-energy neutrino coincident with a tidal disruption event. *arXiv preprint arXiv:2005.05340*, 2020.