

# Jonathan Cohn

Department of Physics and Astronomy  
Dartmouth College  
6127 Wilder Laboratory, Hanover, NH 03755

Website: [jhcohn.github.io](https://jhcohn.github.io)  
ORCID: [0000-0003-1420-6037](https://orcid.org/0000-0003-1420-6037)  
Email: [jonathan.cohn@dartmouth.edu](mailto:jonathan.cohn@dartmouth.edu)

## RESEARCH INTERESTS

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Supermassive black holes • black hole–host galaxy correlations • black hole/galaxy formation & evolution • dynamical modeling of galaxies • nuclear gas disk kinematics • dust attenuation • galaxies (quiescent, relic, massive) • sub-mm/radio astronomy • optical & infrared integral field spectroscopy

## EDUCATION

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<b>Ph.D., Astronomy</b> Advisor: Dr. Jonelle Walsh, Texas A&M University	Aug 2022
<b>M.S., Astronomy</b> Advisor: Dr. Kim-Vy Tran, Texas A&M University	May 2019
<b>B.S., Physics, <i>Magna Cum Laude</i></b> Advisors: Dr. Michael Kesden & Dr. Lindsay King, The University of Texas at Dallas	May 2016

## POSITIONS HELD

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<b>Guarini Dean's Postdoctoral Fellow in Physics and Astronomy</b> Department of Physics and Astronomy, Dartmouth College	2023 – present
<b>Postdoctoral Research Associate</b> Department of Physics & Astronomy, Texas A&M University	2022 – 2023

## RESEARCH MENTORING

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<b>Undergraduate Supervised</b> Ricardo Mendez, Dartmouth College	Summer 2024 – present
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## TEACHING EXPERIENCE

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<b>Instructor of Record</b> ASTR 122: Special Topics: Ethical Astronomy (graduate course) Department of Physics and Astronomy, Dartmouth College	Fall 2024
<b>Guest Lecture</b> ASTR 116: Galactic Systems (graduate course) Department of Physics and Astronomy, Dartmouth College	Spring 2024
<b>Guest Lecturer, three lectures</b> ASTR 2: Exploring the Universe Department of Physics and Astronomy, Dartmouth College	Summer 2023, Fall 2023

**Teaching Assistant: Instructor of Record**  
Astronomy 102: Observational Astronomy  
Department of Physics & Astronomy, Texas A&M University

Summer 2017 – Spring 2018

**Teaching Assistant**  
Astronomy 101: Basic Astronomy  
Department of Physics & Astronomy, Texas A&M University

Fall 2016 – Spring 2017, Fall 2018

**Private Tutor**  
General Chemistry  
College Station, Texas

Fall 2016 – Spring 2017

**Undergraduate Teaching Assistant**  
Weather & Climate  
Department of Physics, The University of Texas at Dallas

Fall 2015 – Spring 2016

**Peer-led Team Learning Super Leader**  
PLTL Leader and Coordinator, General Chemistry I & II  
Student Success Center, The University of Texas at Dallas

Fall 2015 – Spring 2016

**Peer-led Team Learning Leader**  
PLTL Leader, General Chemistry I & II  
Student Success Center, The University of Texas at Dallas

Fall 2013 – Spring 2016

## PUBLICATIONS

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**Summary** (2024-09-16): [ADS search](#) • 15 refereed • 5 lead author • 177 citations •  $h$ -index: 8 .....

**Lead Author** .....

- [Modeling ALMA Observations of the Warped Molecular Gas Disk in the Red Nugget Relic Galaxy NGC 384](#)  
**J. H. Cohn**, M. Curliss, J. L. Walsh, and 9 additional authors  
Accepted for publication in the *Astrophysical Journal* (2024)
- [Gas-dynamical Mass Measurements of the Supermassive Black Holes in the Early-Type Galaxies NGC 4786 and NGC 5193 from ALMA and HST Observations](#)  
K. M. Kabasares & **J. H. Cohn**,\* A. J. Barth, and 10 additional authors  
The *Astrophysical Journal* (2024), 966, 132  
\*Kabasares & Cohn are co-lead authors on this project
- [ALMA Gas-dynamical Mass Measurement of the Supermassive Black Hole in the Red Nugget Relic Galaxy PGC 11179](#)  
**J. H. Cohn**, M. Curliss, J. L. Walsh, and 10 additional authors  
The *Astrophysical Journal* (2023), 958, 186
- [An ALMA Gas-dynamical Mass Measurement of the Supermassive Black Hole in the Local Compact Galaxy UGC 2698](#)  
**J. H. Cohn**, J. L. Walsh, B. D. Boizelle, and 9 additional authors  
The *Astrophysical Journal* (2021), 919, 77
- [zFOURGE: Extreme 5007 Å emission may be a common early-lifetime phase for star-forming galaxies at  \$z > 2.5\$](#)   
**J. H. Cohn**, J. Leja, K.-v. H. Tran, and 12 additional authors  
The *Astrophysical Journal* (2018), 869, 141

**Co-Author** .....

- *Circumnuclear Dust in Luminous Early-Type Galaxies – I. Sample Properties and Stellar Luminosity Models*  
J. R. Davidson, B. D. Boizelle, J. L. Walsh, and 8 additional authors (including **J. H. Cohn**)  
Accepted for publication in The Astrophysical Journal (2024)
- *Black Hole Mass Measurements of Early-Type Galaxies NGC 1380 and NGC 6861 Through ALMA and HST Observations and Gas-Dynamical Modeling*  
K.M. Kabasares, A.J. Barth, D.A. Buote, and 6 additional authors (including **J. H. Cohn**)  
The Astrophysical Journal (2022), 934, 162
- *Gas inflows in the polar ring of NGC 4111: the birth of an AGN*  
G. R. H. Roier, T. Storchi-Bergmann, R. M. McDermid, and 14 additional authors (including **J. H. Cohn**)  
Monthly Notices of the Royal Astronomical Society (2022), 512, 2556
- *Black Hole Mass Measurements of Radio Galaxies NGC 315 and NGC 4261 Using ALMA CO Observations*  
B. D. Boizelle, J. L. Walsh, A. J. Barth, and 6 additional authors (including **J. H. Cohn**)  
The Astrophysical Journal (2021), 908, 19
- *MOSEL: Strong [OIII] 5007 Å Emitting Galaxies at ( $3 < z < 4$ ) from the ZFOURGE Survey*  
K-v H. Tran, B. Forrest, L.Y. Alcorn, and 13 additional authors (including **J. H. Cohn**)  
The Astrophysical Journal (2020), 898, 45
- *A giant galaxy in the young Universe with a massive ring*  
T. Yuan, A. Elagali, I Labbé, and 12 additional authors (including **J. H. Cohn**)  
Nature Astronomy (2020), 4, 957
- *MOSEL Survey: Tracking the Growth of Massive Galaxies at  $2 < z < 4$  Using Kinematics and the IllustrisTNG Simulation*  
A. Gupta, K-v. H. Tran, **J. H. Cohn**, and 13 additional authors  
The Astrophysical Journal (2020), 893, 23
- *A Tale of Two Clusters: An Analysis of Gas-phase Metallicity and Nebular Gas Conditions in Proto-cluster Galaxies at  $z \sim 2$*   
L. Y. Alcorn, A. Gupta, K-V. H. Tran, and 12 additional authors (including **J. H. Cohn**)  
The Astrophysical Journal (2019), 883, 153
- *ZFOURGE: Using Composite Spectral Energy Distributions to Characterize Galaxy Populations at  $1 < z < 4$*   
B. Forrest, K-v.H. Tran, A. Broussard, **J. H. Cohn**, and 11 additional authors  
The Astrophysical Journal (2018), 863, 131
- *Detecting binarity of GW150914-like lenses in gravitational microlensing events*  
D.H. Eilbott, A.H. Riley, **J.H. Cohn**, M.H. Kesden, L.J. King  
Monthly Notices of the Royal Astronomical Society Letters (2017), 467 (1)

## OBSERVATION AND DATA REDUCTION EXPERIENCE

Survey data from the Southern African Large Telescope  
SALT/RSS longslit

2023 – 2024

Observations at McDonald Observatory  
GCMS/VIRUS-P, 2.7m telescope (8 nights)  
VIRUS-W, 2.7m telescope (6 nights)

Apr 2018, Jan 2020, Feb 2023

Observations at Keck Observatory  
MOSFIRE, Keck I (2 nights)

Mar 2019, Oct 2022, Dec 2022, Oct 2023

Keck Cosmic Web Imager, Keck II (1 night)  
OSIRIS, Keck I (4 half nights)

**ALMA data reduction workshop**

13 – 15 Mar 2019

National Radio Astronomy Observatory, Charlottesville, VA

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**AWARDED TELESCOPE TIME**

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**Awarded as PI** .....

Atacama Large Millimeter/submillimeter Array, 12m Array, Band 6 12.3 hours, 2024  
*Doubling the ALMA census of the most massive black holes in nearby early-type galaxies*

Southern African Large Telescope/RSS longslit, PI 28 hours, Nov 2023 – Apr 2024  
*SALT Massive Galaxy Survey*

**Awarded as co-I** .....

NASA Keck observatory/OSIRIS 7 nights; 2022B, 2023B, 2024A  
*Advancing Supermassive Black Hole Measurements with OSIRIS and ALMA*

McDonald Observatory/Mitchell Spectrograph 4 nights, Apr 2018  
*Stellar and Gaseous Content of the Most Massive Elliptical Galaxies*

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**FUNDING, HONORS, & AWARDS**

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Guarini Dean's Postdoctoral Fellowship in Physics & Astronomy 2023 – 2025  
[Provost's Fellowship Program](#), Dartmouth College

College of Science Diversity Committee, Small Grants Program (\$2000) Spring 2022  
PI, grant to support [Gateway to Graduate School](#), Texas A&M University

Climate & Diversity Committee, Department of Physics & Astronomy (\$1800) Spring 2022  
PI, grant to support [Gateway to Graduate School](#), Texas A&M University

Mitchell Institute Education & Public Outreach (\$600) Fall 2019, (\$1,200) Fall 2020  
Co-I, grant to support Astronomy on Tap, Bryan/College Station

Office of Graduate and Professional Studies Travel Award (\$800) Fall 2019  
Texas A&M University

Undergraduate Research Award (\$500) 2014 – 2015  
The University of Texas at Dallas

STEM Columbia Crew Memorial Scholarship (\$1500) 2014 – 2015  
Texas Space Grant Consortium

Dean's List Spring 2013, Fall 2014, Spring 2014  
The University of Texas at Dallas

Academic Excellence Scholarship, Honors (~\$30,000/year) 2012 – 2016  
The University of Texas at Dallas

## CONFERENCES AND PRESENTATIONS

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- Postdoc Colloquia Day, Dartmouth College, Hanover, NH 19 Apr 2024  
Talk: *Dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- Friday Lunch Astronomy Talk, Durham University, Durham, UK 22 Mar 2024  
Talk: *Dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- Tea Talk, Indiana University, Bloomington, IN 12 Feb 2024  
Talk: *Dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- Yale Galaxy Lunch Talk, Yale University, New Haven, CT 24 Jan 2024  
Talk: *Dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- [Accretion History of AGN III: AHA Workshop](#), Miami, FL 14 – 16 Dec 2023  
Talk: *ALMA gas-dynamical mass measurements of supermassive black holes in red nugget relic galaxies*. Discussion leader: *Dual AGN and mergers*
- 241<sup>st</sup> Meeting of the American Astronomical Society, Seattle, WA 11 Jan 2023  
Dissertation talk: *ALMA Gas-dynamical Mass Measurements of the Supermassive Black Holes in Local Compact Galaxies*
- Physics Colloquium, The University of Texas at Dallas 19 Oct 2022  
Talk: *Dynamical mass measurements of supermassive black holes in local relic galaxies*
- [UC Berkeley Astronomy Lunch Talk](#), Berkeley, CA 13 Oct 2022  
Talk: *ALMA gas-dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- [NOIRLab Friday Scientific \(After\) Lunch Talks](#), Tucson, AZ 9 Sep 2022  
Talk: *ALMA gas-dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- [8th Annual GMT Community Science Meeting: Black Holes at All Scales](#), Sedona, AZ 31 Aug – 2 Sep 2022  
Talk: *ALMA gas-dynamical mass measurements of supermassive black holes in red nugget relic galaxies*
- Texas A&M Astronomy Symposium, College Station, TX
  - Talk: *Molecular gas-dynamical mass measurements of supermassive black holes in local compact galaxies* 18 Aug 2022
  - Talk: *Gas-dynamical mass measurement of Supermassive Black Holes in local compact galaxies* 27 Aug 2021
  - Talk: *Gas-dynamical mass measurement of the Supermassive Black Hole in UGC 2698* 17 Aug 2020
  - Talk: *Estimating the masses of supermassive black holes in compact elliptical galaxies* 23 Aug 2019
  - Talk: *Extreme emission may be a common early-lifetime phase for star-forming galaxies at  $z > 2.5$*  24 Aug 2018
  - Talk: *Properties of Extreme Emission Line Galaxies in ZFOURGE from Prospector- $\alpha$*  25 Aug 2017
  - Talk: *Detectability of GW150914-like events by gravitational microlensing* 26 Aug 2016
- Joint Nuclear and Astrophysics Seminar, Texas A&M University (Virtual)
  - Talk: *ALMA gas-dynamical mass measurements of supermassive black holes in red nugget relic galaxies* 30 Sep 2022
  - Talk: *Gas-dynamical mass measurement of the Supermassive Black Hole in UGC 2698 with ALMA* 21 May 2021
- 237<sup>th</sup> Meeting of the American Astronomical Society (Virtual) 14 Jan 2021  
Talk: *Gas-dynamical mass measurement of the Supermassive Black Hole in UGC 2698 with ALMA*
- [Supermassive Black Holes 2020](#) (Virtual, Universidad de Concepción, Chile) 7 – 11 Dec 2020  
Talk: *Gas-dynamical mass measurement of the SMBH in UGC 2698 with ALMA*
- IAU Symposium 359: Galaxy Evolution and Feedback Across Different Environments (GALFEED), Bento Gonçalves, Rio Grande do Sul, Brazil 2 – 6 Mar 2020  
Poster and flash talk: *Gas-dynamical mass of the supermassive black hole in UGC 2698*
- Frank N. Bash Symposium, The University of Texas at Austin, Austin, TX 21 – 23 Oct 2019  
Poster and flash talk: *Gas-dynamical mass of the supermassive black hole in*

UGC 2698

Poster and flash talk: *Star Formation Histories of Extreme Emission Line Galaxies at  $z \sim 3.5$  in the ZFOURGE Survey* 23 – 25 Oct 2017

- [Understanding emission-line galaxies for the next generation of cosmological surveys](#), 5 Sept 2018  
Centro de Estudios de Física del Cosmos de Aragón, Teruel, Spain  
Talk: *ZFOURGE: Extreme 5007 Å emission may be a common early-lifetime phase for star-forming galaxies at  $z > 2.5$*
- 231<sup>st</sup> Meeting of the American Astronomical Society, Washington, DC 9 Jan 2018  
Talk: *Star Formation Histories of Extreme Emission Line Galaxies at  $z \sim 3.5$  in the ZFOURGE Survey*
- [Plumbing Star Formation Rates in the Age of JWST](#), College Station, TX 1 Nov 2017  
Talk: *Star Formation Histories of Extreme Emission Line Galaxies at  $z \sim 3.5$  in the ZFOURGE Survey*
- Fall 2017 Joint Meeting of the Texas Section of the APS, Richardson, TX 20 Oct 2017  
Talk: *Star Formation Histories of Extreme Emission Line Galaxies at  $z \sim 3.5$  in the ZFOURGE Survey*
- 2016 ZFOURGE Team meeting, Magnolia, TX 24-28 Oct 2016  
Talk: *Extreme emission-line galaxy properties*
- Fall 2015 Joint Meeting of the Texas Section of the APS, Waco, TX 30 Oct 2015  
Talk: *Gravitational microlensing by binary black holes*
- The University of Texas at Dallas Undergraduate Research Poster Competition 7 Apr 2015  
Poster: *Gravitational microlensing by binary black holes*

## MEMBERSHIPS

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American Association of University Professors  
American Astronomical Society  
Sigma Pi Sigma Physics Honor Society

## SKILLS

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**Data reduction:** Sub-millimeter/radio (ALMA), optical/IR imaging (*HST/WFC3*), integral field spectroscopy (Gemini/NIFS)

**Data & modeling:** nested sampling (*dynesty*), Markov Chain Monte Carlo (*emcee*), forward modeling, high-performance computer clusters

**Techniques:** SED-fitting, gas-dynamical modeling, *astrodrizzle*, *GALFIT*

**Fluent:** python, L<sup>A</sup>T<sub>E</sub>X, git

**Experience with:** html, IDL, Bash, R, casa, SQL, iraf, pyraf, SLURM and LSF batch systems, virtual machines

## MENTORSHIP

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Graduate Academia Survival Program Summer 2024 – present  
Program founder, coordinator, and mentor  
Dartmouth College, Department of Physics and Astronomy

[Intent to Impact](#), [Movement Consulting](#) Fall 2022  
Completed academic mentoring course for supporting mentees of marginalized backgrounds

Postdoc-Graduate Student Mentoring Program, Texas A&M University 2022 – 2023  
Program coordinator, mentor of 3 graduate students

[Mentoring and Advising Graduates in an Inclusive Community \(MAGIC\)](#) Fall 2019 – 2022  
Program founder, coordinator, mentor of 3 graduate students  
Texas A&M University, Department of Physics & Astronomy

[Discover, Explore, and Enjoy Physics and Engineering \(DEEP\)](#) Fall 2017 – Fall 2021  
Astronomy Team Mentor  
Design, build, and present physics, engineering, and astronomy demonstrations  
Texas A&M University, Department of Physics & Astronomy

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## OUTREACH AND SERVICE

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[AAS CSMA Survey on Poverty in Astronomy](#) Fall 2023 – present  
Co-lead of survey analysis and AAS 245 Special Session planning  
Survey design working group member and AAS 243 Special Session planning

Diversity & Equity Committee, Dartmouth College Summer 2023 – present  
Department of Physics and Astronomy

[GEMS](#) at Dartmouth College Summer 2023 – present  
Gender equality group in the Department of Physics and Astronomy

[Gateway to Graduate School](#) at Texas A&M University 12 Nov 2022  
Open house for undergraduates from historically-excluded backgrounds in astronomy  
Program founder and coordinator

TAMU Astronomy Graduate Student Representative June 2021 – Aug 2022  
Attend astronomy faculty meetings and represent graduate student interests  
Texas A&M University, Department of Physics & Astronomy

[Warrior Scholar Project](#), Texas A&M University Summer 2021  
STEM Week: Astronomy In the News presenter

TAMU Astronomy Graduate Handbook Spring 2021  
Creator, head writer  
Texas A&M University, Department of Physics & Astronomy

[Texas A&M Astronomy graduate student website](#) Spring 2021  
Co-creator and head writer of website for prospective and incoming graduates

[Conferences for Undergraduate Women in Physics at TAMU](#), College Station, TX 17 – 19 Jan 2020  
Panel moderator, poster session judge, volunteer

[Letters to a Pre-Scientist](#) Fall 2018 – Spring 2020  
Scientist pen-pal

Texas A&M Astronomy REU Programming Workshop May 2019  
Workshop introducing REU students to programming and astronomy data  
Texas A&M University, Department of Physics & Astronomy

[Astronomy on Tap BCS](#), Bryan, TX

Chapter co-founder, host, organizer	Apr 2018 – Jun 2023
Trivia writer	Fall 2020 – Jan 2021
Panel: <i>Answering YOUR Burning Questions</i>	13 Dec 2018, 11 Sep 2019, 15 Jan 2020, 23 Nov 2022
Talk: <i>The Past and Future of Space Exploration</i>	24 May 2023
Talk: <i>Supermassive Black Holes: Galactic Monsters and their Lairs</i>	23 Mar 2022
Talk: <i>From Earth to the Stars</i>	16 Sep 2020
Talk: <i>Chasing the Event Horizon</i>	17 Jul 2019
Talk: <i>Here Be <del>Dragons</del> Aliens: The Unsolved Equation</i>	11 Oct 2018
 <a href="#">Texas A&amp;M Physics &amp; Engineering Festival</a>	 Apr 2017, 2018, 2019, 2021
Texas A&M University, Department of Physics & Astronomy	
 <a href="#">DEEP Physics Shows</a>	 2017 – 2021
Texas A&M University, Department of Physics & Astronomy	
 <a href="#">Camp For All</a> , Burton, TX	 2017
Astronomy Outreach	
 <a href="#">Public Star Parties</a>	 Spring 2017
Texas A&M University, Department of Physics & Astronomy	
 Dallas Arboretum, UT Dallas Society of Physics Students	
Earth Day	Apr 2015
The Joy of Science	Apr 2014
 UT Dallas Society of Physics Students, Secretary & Vice President	 Fall 2013 – Spring 2016
The University of Texas at Dallas	
 <a href="#">27th Texas Symposium on Relativistic Astrophysics</a> , The University of Texas at Dallas	 Dec 2013
Public Q&A	
 Alpha Phi Omega Math & Science Camp, The University of Texas at Dallas	 Oct 2013
Astronomy lecturer	