

# Jonathan Cohn

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## RESEARCH INTERESTS

Supermassive black holes • black hole–host galaxy correlations • gas- and stellar-dynamical modeling of galaxies • sub-millimeter/radio astronomy • black hole growth and evolution • galaxy formation and evolution • kinematics of nuclear gas disks • quiescent galaxies • relic galaxies • massive galaxies • starbursting galaxies • extreme emission-line galaxies • SED fitting • star formation histories • gravitational microlensing

## EDUCATION

**Ph.D., Astronomy** August 2022  
Advisor: Dr. Jonelle Walsh, Texas A&M University

**M.S., Astronomy** May 2019  
Advisor: Dr. Kim-Vy Tran, Texas A&M University

**B.S., Physics, *Magna Cum Laude*** May 2016  
Advisors: Dr. Michael Kesden & Dr. Lindsay King, The University of Texas at Dallas

## POSITIONS HELD

**Postdoctoral Research Associate** 2022 – present  
Department of Physics & Astronomy, Texas A&M University

## OBSERVATION AND DATA REDUCTION EXPERIENCE

**Observations at McDonald Observatory** Apr 2018, Jan 2020  
2.7m telescope, VIRUS-P and VIRUS-W (11 nights)

**Observations at Keck Observatory** Mar 2019, Oct 2022  
MOSFIRE, Keck I (2 nights)  
Keck Cosmic Web Imager, Keck II (1 night)  
OSIRIS, Keck I (1 night)

**ALMA data reduction workshop** 13 – 15 Mar 2019  
National Radio Astronomy Observatory, Charlottesville, VA

## TEACHING EXPERIENCE

**Teaching Assistant — Instructor of Record** Summer 2017 – Spring 2018  
Astronomy 102: Observational Astronomy  
Department of Physics & Astronomy, Texas A&M University

**Teaching Assistant** Fall 2016 – Spring 2017, Fall 2018  
Astronomy 101: Basic Astronomy  
Department of Physics & Astronomy, Texas A&M University

**Private Tutor** Fall 2016 – Spring 2017

General Chemistry  
College Station, Texas

**Undergraduate Teaching Assistant**

Fall 2015 – Spring 2016

Weather & Climate

Department of Physics, The University of Texas at Dallas

**Peer-led Team Learning Super Leader**

Fall 2015 – Spring 2016

PLTL Leader and Coordinator, General Chemistry I & II

Student Success Center, The University of Texas at Dallas

**Peer-led Team Learning Leader**

Fall 2013 – Spring 2016

PLTL Leader, General Chemistry I & II

Student Success Center, The University of Texas at Dallas

**PUBLICATIONS**

**First-Author**

- *An ALMA Gas-dynamical Mass Measurement of the Supermassive Black Hole in the Local Compact Galaxy UGC 2698*  
**J. 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. Cohn**, J. Leja, K-v. H. Tran, and 12 additional authors  
The Astrophysical Journal (2018), 869, 141

**Co-Author**

- *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. 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. 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. 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. 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. 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. 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. 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. 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)

### AWARDED TELESCOPE TIME

NASA Keck observatory/OSIRIS 2022B, co-Investigator 3 half nights, Oct/Dec 2022  
*Advancing Supermassive Black Hole Measurements with OSIRIS and ALMA*

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

### HONORS & AWARDS

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

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

### CONFERENCES AND PRESENTATIONS

- 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](#), 31 Aug – 2 Sep 2022  
Sedona, AZ  
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
  - Poster and flash talk: *Gas-dynamical mass of the supermassive black hole in UGC 2698* 21 – 23 Oct 2019
  - 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](#), Centro de Estudios de Física del Cosmos de Aragón, Teruel, Spain 5 Sept 2018
  - 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

American Astronomical Society

## SKILLS

**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, SLURM and LSF batch systems, virtual machines

## MENTORSHIP

[Intent to Impact, Movement Consulting](#) Fall 2022

Enrolled in academic mentoring course for supporting mentees of marginalized backgrounds

Postdoc-Graduate Student Mentoring Program, Texas A&M University 2022 — present

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

## OUTREACH AND VOLUNTEER WORK

[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 organizer

TAMU Astronomy Graduate Student Representative June 2021 – present

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 — present  
Trivia writer Fall 2020 — Jan. 2021  
Panel: *Answering YOUR Burning Questions* 13 Dec. 2018, 11 Sep. 2019, 15 Jan. 2020  
Talk: *Supermassive Black Holes: Galactic Monsters and their Lairs* 23 March 2022  
Talk: *From Earth to the Stars* 16 Sep. 2020  
Talk: *Chasing the Event Horizon* 17 Jul. 2019  
Talk: *Here Be ~~Dragons~~ Aliens: The Unsolved Equation* 11 Oct. 2018

[Texas A&M Physics & Engineering Festival](#) Apr. 2017, 2018, 2019, 2021  
Texas A&M University, Department of Physics & Astronomy

[DEEP Physics Shows](#) 2017 — 2021  
Texas A&M University, Department of Physics & Astronomy

[Camp For All](#), Burton, TX 2017  
Astronomy Outreach

[Public Star Parties](#) 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

[27th Texas Symposium on Relativistic Astrophysics](#), 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