Charles J. Law – Curriculum Vitae

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PROFESSIONAL APPOINTMENTS

NASA Hubble Fellowship Program (NHFP) Sagan Fellow — Sept 2023 – Present
University of Virginia, Department of Astronomy (Charlottesville, VA)

Postdoctoral Researcher — June 2023 – July 2023
Center for Astrophysics | Harvard & Smithsonian (Cambridge, MA)

EDUCATION

Ph.D., Astronomy and Astrophysics (Harvard University, Cambridge, MA) — 2018 – 2023
Thesis: Zooming in on the Chemistry of Star and Planet Formation — Advisors: Prof. Karin Öberg & Dr. Qizhou Zhang

M.A., Astronomy and Astrophysics (Harvard University, Cambridge, MA) — 2021

B.A., Physics and Astrophysics (Harvard University, Cambridge, MA) — 2013 – 2017
Thesis: Carbon Chain Molecules Toward Embedded Low-Mass Protostars — Advisor: Prof. Karin Öberg

AWARDS

IAU Division H: Interstellar Matter and Local Universe, 2023 PhD Thesis Prize	2024
NASA Hubble Fellowship Program, Sagan Fellowship	2023 – Present
51 Pegasi b Postdoctoral Fellowship (declined)	2023
AAS Rodger Doxsey Travel Prize (241st AAS meeting)	2023
ALMA Ambassador	2022
NSF Graduate Research Fellowship	2019
Smithsonian Astrophysical Observatory Research Fellowship	2017
Leo Goldberg Prize in Astronomy (Harvard University)	2017
Thomas Temple Hoopes Prize (Harvard University)	2017
Phi Beta Kappa (Harvard University)	2017
USRA Frederick Tarantino Memorial Scholarship Award	2016
PRISE Undergraduate Research Fellowship (Harvard University)	2016
Detur Book Prize (Harvard University)	2014
John Harvard Scholar (Harvard University)	2014

PUBLICATIONS

Author of **70 publications** (refereed or under review). See a full listing at the end of CV and ADS library for more details.

TELESCOPE OBSERVING & PROPOSALS

PI of **20 programs** and Co-I on an additional 70 programs for access to observing facilities.

PI:

1.	Chemical Signatures of a Recently-Confirmed Giant Protoplanet in the HD 169142 Disk	**ALMA**, B, 21.8 hrs, Cycle 11
2.	Witnessing Giant Planet Formation in the Act	**ALMA**, A, 5.2 hrs, Cycle 11
3.	Detecting Free-free Emission around Embedded Protoplanets	**ALMA**, B, 14.3 hrs, Cycle 11
4.	Searching for a Giant Protoplanet in a Massive, Edge-on Protoplanetary Disk	**VLA**, A, 22.5 hrs, 2024B
5.	Characterizing Large-scale Gas Streamers around Planet-forming Disks	**SMT**, 43.0 hrs, 2024A
6.	Detecting Free-free Emission around a Giant Protoplanet in the HD 169142 Disk	**VLA**, A, 20.0 hrs, 2024A
7.	Searching for a Hidden Reservoir of Complex Nitrile Chemistry in Disks	**SMT**, 24.0 hrs, 2023B
8.	Chemical Signatures of a Recently-Confirmed Giant Protoplanet in the HD 169142 Disk	**ALMA**, B, 21.8 hrs, Cycle 10
9.	Witnessing Giant Planet Formation in the Act	**ALMA**, B, 5.2 hrs, Cycle 10
10.	HNC as a Novel Tracer of Protoplanetary Disk Properties	**SMA**, 4 A + 6 B tracks, 2023A/23B
11.	Linking Ice and Complex Molecule Inventories in MYSOs	**ALMA**, A, 5.4 hrs, Cycle 9
12.	Witnessing Giant Planet Formation in the Act	**ALMA**, B, 6.0 hrs, Cycle 9

13. Search for a Surviving Stellar Companion of Nearby SNRs E0102 and N132D — **Magellan**, 2.5 nights, 2022B
14. Connecting Scaling Laws between Exoplanets and Young Disks — **SMA**, 8 B tracks, 2020B/21A
15. Jet-like, IR-bright Ejecta in O-rich LMC Supernova Remnant N132D — **Magellan**, 3 nights, 2021B
16. Jet-like, IR-bright Ejecta in O-rich LMC Supernova Remnant N132D — **Magellan**, 4 nights, 2020B
17. Ionized Accretion Flows around 0.1 pc Scale Clusters with O-Type Stars — **ALMA**, C, 14.8 hrs, Cycle 7
18. Jet-like, IR-bright Ejecta in O-rich LMC Supernova Remnant N132D — **Magellan**, 3 nights, 2019B
19. Formation of O Stars by Accretion of Ionized Gas — **VLA**, A, 11 hrs, 2019A
20. Ionized Accretion Flows around 0.1 pc Scale Clusters with O-Type Stars — **SMA**, 8 B tracks, 2018B/19A

Co-I: **ALMA** (724 hrs), **ACA** (75 hrs), **SMA** (536 hrs), **VLA** (33 hrs), **VLBA** (72 hrs), **GBT** (14 hrs), **SMT** (20 hrs), **IRAM 30m** (50 hrs), **NOEMA** (64 hrs), **JWST** (21 hrs), **Chandra** (190 ks), **HST** (3 orbits), **VLT** (51 hrs), **Shane** (10 nights), **Gemini** (5 hrs), **WIYN** (1.5 nights), **MMT** (0.5 nights), **HET/HPF** (7.3 hrs), **LBTO** (4 hrs)

Observing: **SMT** (10m single dish | 2023 – 2024): 17 nights; **Magellan** (6.5m | 2019, 2021, 2022): 7.5 nights
SMA (sub-mm interferometer | 2016 – 2018): 15 nights; **MMT** (6.5m | 2016): 1 night

Grants: Student Observing Support, VLA 2019A (**$34k**), Student Observing Support, ALMA Cycle 9 (**$23k**)

MAJOR COLLABORATIONS

Chemistry of Herbig Environments and their Exoplanet Relationships (CHEER) — 2024 – Present
PI: Jamila Pegues; co-PIs: Dana Anderson, Karina Mauco, Miguel Vioque
ALMA Cycle 11 Large Program to perform a large, uniform chemical survey of disks around Herbig stars

DiskStrat: ALMA LP of Edge-on Disks — 2024 – Present
PI: Romane Le Gal; co-PIs: Yuri Aikawa, Jennifer Bergner, Catherine Espaillat, François Ménard
ALMA Cycle 11 Large Program to map the 3D structure of carefully-selected, 9 edge-on disks

SMA-SPEC: the SMA Survey of Protoplanetary disks to Explore their Chemistry — 2023 – Present
PI: Karin I. Öberg
SMA Large Scale Program to conduct unbiased spectral line survey of 40 planet-forming disks

The ALMA Disk-Exoplanet C/Onnection (DECO) — 2023 – Present
PI: Ilse Cleeves; co-PIs: Yuri Aikawa, Viviana V. Guzmán, Anna Miotello, Dana Anderson
ALMA Cycle 8 Large Program to survey the chemistry of 80 disks across 4 star-forming regions

X-ray Mega-Flares in the Orion Nebula Cluster — 2022 – Present
PI: Konstantin V. Getman
Multi-telescope (Chandra, VLBA, ALMA, HET) campaign to study flares in ~1000 PMS stars in the ONC

N132D Chandra Legacy Team — 2019 – Present
PI: Paul P. Plucinsky
Chandra Cycle 20 Large Program legacy observations of SNR N132D at unprecedented depth

Molecules with ALMA at Planet-forming Scales (MAPS) — 2018 – Present
PI: Karin I. Öberg; co-PIs: Yuri Aikawa, Edwin A. Bergin, Viviana V. Guzmán, Catherine Walsh
ALMA Cycle 6 Large Program to study the chemistry of five protoplanetary disks at 10-20 au scales
[MAPS team webpage and selected press coverage]

TEACHING

Instructor

Introduction to Scientific Programming in Python (Harvard Pre-College Program)	Summer 2021, 2022, 2023
Scientific Computing with SciPy, Python Workshop (SAO Latino Initiative Program)	Summer 2021, 2022, 2023
Unveiling the Cosmos (Beacon Hill Seminars)	Spring, Fall 2021

Guest Lectures

Astronomy 201 - Descriptive Astronomy (Harry S Truman College, City Colleges of Chicago)	Oct 2023, Apr 2024

Teaching Fellow

Interstellar Medium and Star Formation (Graduate, Harvard University)	Spring 2021
Stellar and Planetary Astronomy (Undergraduate, Harvard University)	Spring 2020
Introduction to Scientific Programming in Python (Harvard Pre-College Program)	Summer 2019, 2020
Physics I (Lab): Mechanics, Elasticity, Fluids, and Diffusion (Undergraduate, Harvard University)	Fall 2017

Pedagogy Training & Teaching Awards

Creating Inclusive and Accessible Learning Faculty Community (University of Virginia)	Spring 2024
Science Education Undergraduate Mentoring Workshop Series (Harvard University)	Spring 2022
Derek Bok Teaching Certificate (Harvard University)	2021
Derek Bok Certificate of Excellence and Distinction in Teaching (Harvard University)	Spring 2021

LEADERSHIP

Subcommittee Chair, AAS Education Committee (Outreach, Community Engagement & Informal Education)	2024 – Present
Co-Organizer, Astronomy Mentoring Program for Upcoming Postdocs (AMP-UP)	2024 – Present
Postdoc Representative (UVA)	Spring 2024 – Present
Co-Organizer, Journal Club (UVA)	Spring 2024 – Present
Program Officer Liaison, NHFP DEI Committee	2023 – Present
Co-Organizer, Postdoc Orientation & Symposium (UVA)	Fall 2024
Workshop Leader, ALMA data reduction workshop (IAU meeting, Traverse City, MI)	July 2023
Organizer, ALMA Data Reduction Workshop (CfA)	Fall 2022
Member, CfA APS-IDEA, Accessibility Subcommittee	2021 – 2023
Peer Mentor, Harvard Astronomy Department	2021 – 2022
Co-Organizer, CfA Star Formation Journal Club	2022 – 2023
Co-Organizer, Graduate School Visitation Days (Harvard)	Spring 2020
Co-Organizer, Student-Faculty Lunch Series (Harvard)	Spring 2020

SERVICE

Referee (A&A, A&A Letters, ApJ, ApJS)	2018 – Present
AAS Chambliss Competition Poster Judge (4x)	2022 – Present
Member, New Great Observatories Science Analysis Group	2023 – Present
Editor, BAAS Solar Eclipse Special Issue	Spring, Fall 2024
SOC, NHFP Symposium (Cambridge, MA)	2023
Poster Judge, National Collegiate Research Conference	Jan 2023
Reviewer, ALMA Archival Student Observing Support awards	Spring 2022

OUTREACH

Subject Matter Expert, NASA Community College Network	2022 – Present
AAS Astronomy Ambassador	2019 – Present
Local School Visits, IAU GA, Cape Town, South Africa	Aug 2024
Guest, Down to Earth with Terry Virts, Podcast	Feb 2022
Subject Matter Expert, NASA JWST Community Events	2021 – 2022
Contributing Author, astrobites [link]	2018 – 2020

Astronomy Advisor, Harvard Undergraduate Science Olympiad 2018 – 2020
Volunteer, CfA Public Observatory Nights 2017 – 2020
Presenter, Flipped Science Fair, John F. Kennedy School June 2018, May 2019
Speaker, Science Research Mentoring Program, Cambridge Rindge and Latin School Mar 2018

MENTORING

Research:

Deryl Long (UVA, Graduate) Fall 2024 – Present
Kyle Gresko (UVA, Undergraduate Senior Thesis) Summer 2024 – Present
TJ Maher (UVA, Undergraduate Senior Thesis) Spring 2024 – Fall 2024
Now a PhD student at the University of Miami
Arielle Frommer (Harvard, Undergraduate) Summer 2022 – Spring 2023
Sarai Rankin (Morgan State, SAO REU, Undergraduate) Summer 2022
Now a PhD student at Harvard University
Sage Crystian (Harvard, Undergraduate) Summer 2021
Prabidhik KC (Harvard, Undergraduate) Spring 2020 – Spring 2022
Now a predoctoral fellow at the National Bureau of Economic Research
Devin Sullivan (Harvard, Undergraduate Junior Thesis / co-supervised with K. Öberg) Fall 2019
Now a PhD student at Boston University

Non-Research:

Charlie Mpetha (AMP-UP, University of Edinburgh, Graduate) Fall 2024 – Present
Rayna Rampalli (AMP-UP, Dartmouth, Graduate) Fall 2024 – Present
Everett McArthur (APS National Mentoring Community, KIPAC, Pre-Doctoral Student) Spring 2024
Now a PhD student at the Ohio State University
Stephen DiKerby (AMP-UP, Penn State, Graduate) Fall 2023 – Spring 2024
Now a postdoc at Michigan State University

SELECTED TALKS

I have given over 65 talks, including 10+ public talks (see a full listing here).

Seminars, Colloquium, and Invited

Symposium on Next Generation Astrochemistry (Tokyo, Japan) Nov 2024
UVA-NRAO Joint Colloquium (Charlottesville, VA) Oct 2024
Carnegie Earth & Planets Laboratory, Astronomy Seminar (Washington DC) Sept 2024
2023 PhD Prize Talk, Division H Days, IAU GA (Cape Town, South Africa) Aug 2024
Harlow Shapley Lecture Series (Chattanooga State Community College, TN) Apr 2024
Celebrating 30 Years of Protoplanetary Disk Chemistry (Schloss Ringberg, Germany) Feb 2024
SMA Science Seminar, CfA (Cambridge, MA) May 2023
Leiden Astrochemistry Seminar (Leiden, The Netherlands) Sept 2022
American Chemical Society, AstroCheminar (virtual) Jan 2022
Origins Seminar, University of Arizona (virtual) May 2021

Conference Contributed

Extreme Solar Systems V (Christchurch, New Zealand) Mar 2024
Kavli-IAU Astrochemistry Symposium (Traverse City, MI) July 2023
2023 Northeast Star and Planet Formation Meeting, CfA (Cambridge, MA) June 2023
Planet and Binary Formation in GI Discs (Leicester, UK) Sept 2022
Exoplanets IV, AAS Topical Conference Series (Las Vegas, NV) May 2022
Science with the SMA: Present and Future (Taipei, Taiwan) Oct 2019

Public

McCormick Observatory Public Nights (Charlottesville, VA) Oct 2024
Charlottesville Astronomical Society (Charlottesville, MA) Jan 2024
Cape Cod Museum of Natural History (Brewster, MA) July 2022
Union County College / AAI (Cranford, NJ) Dec 2019

PUBLICATIONS

Statistics from ADS: 70 papers (refereed or submitted), 15 as first author; students marked with †.
1654 citations (344 first-author citations), h-index = 23.

First Author

1. **Law, C. J.**, Le Gal, R., Yamato, Y., et al., 2024. ApJ, subm.
   "A Multi-line Analysis of the Distribution and Excitation of CS and H_2CS in the HD 163296 Disk"
2. **Law, C. J.**, Zhang, Q., Frommer, A.†, et al., 2024. ApJ, subm.
   "A Wideband Chemical Survey of Massive Star-forming Regions at Subarcsecond Resolution with the Submillimeter Array"
3. **Law, C. J.**, Benisty, M., Facchini S., et al., 2024. ApJ, 964, 190 [link]
   "Mapping the Vertical Gas Structure of the Planet-hosting PDS 70 Disk"
4. **Law, C. J.**, Alarcón, F., Cleeves, L. I., et al., 2023. ApJL, 959, L27 [link]
   "C I Traces the Disk Atmosphere in the IM Lup Protoplanetary Disk"
5. **Law, C. J.**, Booth, A. S., & Öberg, K. I. 2023. ApJL, 952, L19 [link]
   "SO and SiS Emission Tracing an Embedded Planet and Compact ^{12}CO and ^{13}CO Counterparts in the HD 169142 Disk"
6. **Law, C. J.**, Teague, R., Öberg, K. I., et al., 2023. ApJ, 948, 60 [link]
   "Mapping Protoplanetary Disk Vertical Structure with CO Isotopologue Line Emission"
7. **Law, C. J.**, Crystian, S.†, Teague, R., et al., 2022. ApJ, 932, 114 [link]
   "CO Line Emission Surfaces and Vertical Structure in Mid-Inclination Protoplanetary Disks"
8. **Law, C. J.**, Loomis, R. A., Teague, R., et al., 2021. ApJS, 257, 3 [link]
   "MAPS. III. Characteristics of Radial Chemical Substructures"
9. **Law, C. J.**, Teague, R., Loomis, R. A., et al., 2021. ApJS, 257, 4 [link]
   "MAPS. IV. Emission Surfaces and Vertical Distribution of Molecules"
10. **Law, C. J.**, Zhang, Q., Öberg, K. I., et al., 2021. ApJ, 909, 214 [link]
    "Subarcsecond Imaging of the Complex Organic Chemistry in Massive Star-Forming Region G10.6-0.4"
11. **Law, C. J.**, Milisavljevic, D., Patnaude, D. J., et al., 2020. ApJ, 894, 73 [link]
    "3D Kinematic Reconstruction of the Optically-Emitting, High-Velocity, Oxygen-Rich Ejecta of Supernova Remnant N132D"
12. **Law, C. J.**, Zhang, Q., Ricci, L., et al., 2018. ApJ, 865, 17 [link]
    "Submillimeter Array Observations of Extended CO (J = 2 – 1) Emission in Interacting Galaxy NGC 3627"
13. **Law, C. J.**, Öberg, K. I., Bergner, J. B., et al., 2018. ApJ, 863, 88 [link]
    "Carbon Chain Molecules Toward Embedded Low-Mass Protostars"
14. **Law, C. J.**, Ricci, L., Andrews, S. M., et al., 2017. AJ, 154, 255 [link]
    "An SMA Continuum Survey of Circumstellar Disks in the Serpens Star-Forming Region"
15. **Law, C. J.**, Milisavljevic, D., Crabtree, K. N., et al., 2017. MNRAS, 470, 3 [link]
    "TRES Survey of Variable Diffuse Interstellar Bands"

Second or Third Author

1. Yoshida, T., Nomura, H., **Law, C. J.**, et al., 2024. ApJL, 971, L15 [link]
   "Outflow Driven by a Protoplanet Embedded in the TW Hya Disk"
2. Booth, A. S., **Law, C. J.**, Temmink, M., et al., 2023. A&A, 678, 146 [link]
   "Tracing snowlines and C/O ratio in a planet-hosting disk: ALMA molecular line observations towards the HD 169142 disk"
3. Sturm, J. A., McClure M. K., **Law, C. J.**, et al., 2023. A&A, 677, 17 [link]
   "The edge-on protoplanetary disk HH 48 NE. I. Modeling the geometry and stellar parameters"
4. Romero-Mirza, C. E., Öberg, K. I., **Law, C. J.**, et al., 2023. ApJ, 943, 35 [link]
   "Cold Deuterium Fractionation in the Nearest Planet-Forming Disk"
5. Teague, R., **Law, C. J.**, Huang, J., et al., 2021. JOSS, 6, 67 [link]
   "disksurf: Extracting the 3D Structure of Protoplanetary Disks"
6. Zhang, K., Booth, A. S., **Law, C. J.**, et al., 2021. ApJS, 257, 5 [link]
   "MAPS. V. CO Gas Distributions"
7. Guzmán, V. V., Bergner, J. B., **Law, C. J.**, et al., 2021. ApJS, 257, 6 [link]
   "MAPS. VI. Distribution of the Small Organics HCN, C_2H, and H_2CO"

Other Co-Authored Publications

1. Getman, K. V., et al. (incl. **Law, C. J.**), 2024, ApJS, subm.
   "Multi-Observatory Study of Young Stellar Energetic Flares (MORYSEF): No Evidence for Abnormally Strong Stellar Magnetic Fields After Powerful X-ray Flares"
2. Evans, L., et al. (incl. **Law, C. J.**), 2024, A&A, subm.
   "ALMA reveals thermal and non-thermal desorption of methanol ice in the HD 100546 protoplanetary disk"
3. Temmink, M., et al. (incl. **Law, C. J.**), 2024, A&A, subm.
   "Characterising the molecular line emission in the asymmetric Oph-IRS 48 dust trap: Temperatures, timescales, and sub-thermal excitation"
4. Lewis, B. L., et al. (incl. **Law, C. J.**), 2024, Physical Review Physics Education Research, subm. [link]
   "Improving Undergraduate Astronomy Students' Skills with Research Literature via Accessible Summaries: A Case Study with Astrobites-based Lesson Plans"
5. Getman, K. V., et al. (incl. **Law, C. J.**), 2024, ApJS, in press [link]
   "Multi-Observatory Research of Young Stellar Energetic Flares (MORYSEF): X-ray Flare Related Phenomena and Multi-epoch Behavior"
6. Keyte, L., Kama, M., Booth, A. S., **Law, C. J.**, & Leemker, M. 2024, MNRAS, in press [link]
   "Volatile composition of the HD 169142 disk and its embedded planet"
7. Bergner, J. B., et al. (incl. **Law, C. J.**), 2024, ApJ, in press [link]
   "JWST ice band profiles reveal mixed ice compositions in the HH 48 NE disk"
8. Booth, A. S., et al. (incl. **Law, C. J.**), 2024, ApJ, in press [link]
   "Measuring the ^{34}S and ^{33}S isotopic ratios of volatile sulfur during planet formation"
9. Yamato, Y., et al. (incl. **Law, C. J.**), 2024, ApJ, 974, 83 [link]
   "Detection of Dimethyl Ether in the Central Region of the MWC 480 Protoplanetary Disk"
10. Sturm, J. A., et al. (incl. **Law, C. J.**), 2024, A&A, 689, 92 [link]
    "A JWST/MIRI analysis of the ice distribution and PAH emission in the protoplanetary disk HH 48 NE"
11. Rampinelli, L., et al. (incl. **Law, C. J.**), 2024, A&A, 689, 65 [link]
    "ALMA high-resolution observations unveil planet formation shaping molecular emission in the PDS 70 disk"
12. Tanious, M., et al. (incl. **Law, C. J.**), 2024. A&A, 687, 92 [link]
    "Anatomy of the Class I protostar L1489 IRS with NOEMA. I. Disk, streamers, outflow(s) and bubbles at 3 mm"
13. Yoshida, T. C., et al. (incl. **Law, C. J.**), 2024. ApJ, 966, 63 [link]
    "The First Spatially Resolved Detection of ^{13}CN in a Protoplanetary Disk and Evidence for Complex Carbon Isotope Fractionation"
14. Booth, A. S., et al. (incl. **Law, C. J.**), 2024. AJ, 167, 165 [link]
    "An ALMA Molecular Inventory of Warm Herbig Ae Disks. II. Abundant Complex Organics and Volatile Sulphur in the IRS 48 Disk"
15. Booth, A. S., et al. (incl. **Law, C. J.**), 2024, AJ, 167, 164 [link]
    "An ALMA Molecular Inventory of Warm Herbig Ae Disks. I. Molecular Rings, Asymmetries, and Complexity in the HD 100546 Disk"
16. Romero-Mirza, C. E., et al. (incl. **Law, C. J.**), 2024. ApJ, 964, 36 [link]
    "JWST-MIRI Spectroscopy of Warm Molecular Emission and Variability in the AS 209 Disk"
17. Sano, H., et al. (incl. **Law, C. J.**), 2023. ApJ, 958, 53 [link]
    "ALMA Observations of Supernova Remnant N49 in the Large Magellanic Cloud. II. Non-LTE Analysis of Shock-heated Molecular Clouds"
18. Sturm, J. A., et al. (incl. **Law, C. J.**), 2023. A&A, 679, 138 [link]
    "A JWST inventory of protoplanetary disk ices. The edge-on protoplanetary disk HH 48 NE, seen with the Ice Age ERS program"
19. Waggoner, A. R., et al. (incl. **Law, C. J.**), 2023. ApJ, 956, 103 [link]
    "MAPS: Constraining Serendipitous Time Variability in Protoplanetary Disk Molecular Ion Emission"
20. Portilla-Revelo, B., Kamp, I., Facchini, S., van Dishoeck, E. F., **Law, C. J.**, et al. 2023. A&A, 677, 76 [link]
    "Constraining the gas distribution in the PDS 70 disc as a method to assess the effect of planet-disc interactions"

21. Sturm, J. A., et al. (incl. **Law, C. J.**), 2023. A&A, 677, 18 [link]
"The edge-on protoplanetary disk HH 48 NE. II. Modeling ices and silicates"
22. Galloway-Sprietsma, M., et al. (incl. **Law, C. J.**), 2023. ApJ, 950, 147 [link]
"MAPS: Complex Kinematics in the AS 209 Disk Induced by a Forming Planet and Disk Winds"
23. Pegues, J., et al. (incl. **Law, C. J.**), 2023. ApJ, 948, 57 [link]
"An SMA Survey of Chemistry in Disks around Herbig AeBe Stars"
24. Banovetz, J., et al. (incl. **Law, C. J.**), 2023. ApJ, 948, 33 [link]
"Hubble Space Telescope Proper Motion Measurements of Supernova Remnant N132D: Center of Expansion and Age"
25. Calahan, J. K., et al. (incl. **Law, C. J.**), 2023. Nature Astronomy, 7, 49 [link]
"UV-driven chemistry as a signpost of late-stage planet formation"
26. Galván-Madrid, R., Zhang, Q., Izquierdo, A., **Law, C. J.**, et al., 2023. ApJL, 942, L7 [link]
"Clustered Formation of Massive Stars within an Ionized Rotating Disk"
27. Anderson, A. R., Williams, J. P., van der Marel, N., **Law, C. J.**, et al., 2022. ApJ, 938, 55 [link]
"Protostellar and Protoplanetary Disk Masses in the Serpens Region"
28. Bae, J., et al. (incl. **Law, C. J.**), 2022. ApJL, 934, L20 [link]
"MAPS: A Circumplanetary Disk Candidate in Molecular-line Emission in the AS 209 Disk"
29. Sharda, P., et al. (incl. **Law, C. J.**), 2022. MNRAS, 509, 2 [link]
"First extragalactic measurement of the turbulence driving parameter:
ALMA observations of the star-forming region N159E in the Large Magellanic Cloud"
30. Martín-Doménech, R., et al. (incl. **Law, C. J.**), 2021. ApJ, 923, 155 [link]
"Hot Corino Chemistry in the Class I Binary Source Ser-emb 11"
31. Öberg, K. I., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 1 [link]
"MAPS. I. Program Overview and Highlights"
32. Czekala, I., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 2 [link]
"MAPS. II. CLEAN Strategies for Synthesizing Images of Molecular Line Emission in Protoplanetary Disks"
33. Bosman, A. D., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 7 [link]
"MAPS. VII. Substellar O/H and C/H and Superstellar C/O in Planet-feeding Gas"
34. Alarcón, F., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 8 [link]
"MAPS. VIII. CO Gap in AS 209 – Gas Depletion or Chemical Processing?"
35. Ilee, J. D., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 9 [link]
"MAPS. IX. Distribution and Properties of the Large Organic Molecules HC_3N, CH_3CN, and c-C_3H_2"
36. Cataldi, G., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 10 [link]
"MAPS. X. Studying Deuteration at High Angular Resolution toward Protoplanetary Disks"
37. Bergner, J. B., Öberg, K. I., Guzmán, V. V., **Law, C. J.**, et al., 2021. ApJS, 257, 11 [link]
"MAPS. XI. CN and HCN as Tracers of Photochemistry in Disks"
38. Le Gal, R., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 12 [link]
"MAPS. XII. Inferring the C/O and S/H Ratios in Protoplanetary Disks with Sulfur Molecules"
39. Aikawa, Y., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 13 [link]
"MAPS. XIII. HCO^+ and Disk Ionization Structure"
40. Sierra, A., Pérez, L. M., Zhang, K., **Law, C. J.**, et al., 2021. ApJS, 257, 14 [link]
"MAPS. XIV. Revealing Disk Substructures in Multiwavelength Continuum Emission"
41. Bosman, A. D., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 15 [link]
"MAPS. XV. Tracing Protoplanetary Disk Structure within 20 au"
42. Booth, A. S., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 16 [link]
"MAPS. XVI. Characterizing the Impact of the Molecular Wind on the Evolution of the HD 163296 System"
43. Calahan, J. K., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 17 [link]
"MAPS. XVII. Determining the 2D Thermal Structure of the HD 163296 Disk"

44. Teague, R., et al. (incl. **Law, C. J.**), 2021. ApJS, 257, 18 [link]
"MAPS. XVIII. Kinematic Substructures in the Disks of HD 163296 and MWC 480"

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