

Publications

Refereed and Accepted publications : [ADS Felipe Alarcon's Personal Library](#)

Number of Publications : 53 refereed publications (9 as 1st author + 5 as 2nd author) + 7 articles submitted.

h-index : 26

Number of Citations : 2362 (source NASA/ADS)

First author papers :

1. "EK Cha b : multi-tracer detection of a planetary-mass companion candidate in a gas-rich environment." **Alarcón**, Chowbay, Facchini et al, accepted for publication in A&A Letters. arXiv :2610.10701.
2. "exoALMA. XXIV. Formaldehyde Emission in Protoplanetary Disks of exoALMA Compared with Their Properties and Dynamical State." **Alarcón**, Facchini, Trapman et al, ApJL 1000 L32 (2026).
3. "Silicon Sulfide Isotopologues Reveal Silicate Sublimation in the Outer Disk of PDS 66" Yoshida, **Alarcón** et al, ApJL, 999, L22 (2026). *shared first authorship
4. "Thermal Structure and Millimeter Emission of Protoplanetary Disk with embedded protoplanets from radiative transfer modeling" **Alarcón** & Bergin, ApJ, 967, 144 (2024).
5. "Extinction Values toward Embedded Planets in Protoplanetary Disks Estimated from Hydrodynamic Simulations" **Alarcón**, Bergin, and Cugno, ApJ, 966, 225 (2024)
6. "Viscous heating as the dominant heat source inside the water snowline of V883 Ori" **Alarcón**, Casassus, Lyra et al, MNRAS, 527, 9655 (2024).
7. "A Localized Kinematic Structure Detected in Atomic Carbon Emission Spatially Coincident with a Proposed Protoplanet in the HD 163296 Disk" **Alarcón**, Bergin, and Teague ApJL, 941, L24 (2022)
8. "Molecules with ALMA at Planet-forming Scales (MAPS). VIII. CO Gap in AS 209-Gas Depletion or Chemical Processing?" **Alarcón**, Bosman, Bergin et al. ApJS, 257, 8 (2021)
9. "Chemical Evolution in a Protoplanetary Disk within Planet Carved Gaps and Dust Rings" **Alarcón**, Teague, Zhang et al. ApJ, 905, 68 (2020)

Refereed papers (* denotes 2nd author)

Major and/or Significant Contributions :

10. * "Dust Recycling in Protoplanetary Disks : A Novel Method of Volatile Enrichment in Embedded Giant Planets" Van Clepper, **Alarcón**, Ciesla et al. ApJL, 994, L44 (2025).
11. * "Tracking the Chemical Evolution of Hydrocarbons Through Carbon Grain Supply in Protoplanetary Disks" Raul, **Alarcón**, and Bergin ApJ, 982, 155 (2025)
12. * "CI Traces the Disk Atmosphere in the IM Lup Protoplanetary Disk" Law, **Alarcón**, Cleeves et al. ApJL, 959, L27 (2023)
13. * "Molecules with ALMA at Planet-forming Scales (MAPS). VII. Substellar O/H and C/H and Superstellar C/O in Planet-feeding Gas" Bosman, **Alarcón**, Bergin et al. ApJS, 257, 7 (2021)
14. * "Destruction of Refractory Carbon Grains Drives the Final Stage of Protoplanetary Disk Chemistry" Bosman, **Alarcón**, Zhang et al. ApJ, 910, 3 (2021)
15. "Direct Measurement of Extinction in a Planet-Hosting Gap " Cugno, Facchini, **Alarcón** et al. A&A, 170, 317 (2025)
16. "PDRs4All. VIII. Mid-infrared emission line inventory of the Orion Bar" Van De Putte, Meshaka, Trahin et al. A&A, 687, A86 (2024)
17. "A far-ultraviolet-driven photoevaporation flow observed in a protoplanetary disk" Berné, Habart, Peeters et al. Sci, 383, 988 (2024)
18. "Formation of the methyl cation by photochemistry in a protoplanetary disk" Berné, Martin-Drumel, Schroetter et al. Nature, 621, 56 (2023)
19. "PDRs4All. IV. An embarrassment of riches : Aromatic infrared bands in the Orion Bar" Chown, Sidhu, Peeters et al. A&A, 685, A75 (2024)
20. "Molecules with ALMA at Planet-forming Scales. XX. The Massive Disk around GM Aurigae" Schwarz, Calahan, Zhang et al. ApJS, 257, 20 (2021)

Author Contributions and/or Data Reduction :

21. "JWST-DECO : The Impact of Accretion on Mid-Infrared Observable Water in Planet-forming Disks." Calahan, Dziire, Öberg et al. ApJ, 1004,213 (2026)
22. "PDRs4All : XX. The 6 to 9 μ m region as a probe of PAH charge and size in the Orion Bar." Khan, Daza Rodriguez, Peeters et al. A&A, 709, A39 (2026)

23. "PDRs4All : XIX. The evolution of the PAH ionisation and PAH size distribution across the Orion Bar." Maragkoudakis, Boersma, Peeters et al. *A&A*, 709, A38 (2026)
24. "Tracing Pebble Drift History in Two Protoplanetary Disks with CO Enhancement" Armitage, Williams, Zhang et al. *ApJ*, 998, 308 (2026)
25. "JWST-MIRI Observations of the Irradiated Chemistry in the Inner Disk Cavity of GM Aur." Romero-Mirza, Öberg, Banzatti et al. *ApJ*, 991, 128 (2025)
26. "PDRs4All XV : CH radical and H_3^+ molecular ion in the irradiated protoplanetary disk d203-506" Schroetter, Berné, Goicoechea et al. *A&A*, 699, L13 (2025)
27. "PDRs4All : XIV. Probing CH out-of-plane bending modes of PAH molecules in the Orion Bar with JWST" Khan, Abbott, Peeters et al. *A&A*, 699, A133 (2025)
28. "A solar C/O ratio in planet-forming gas at 1 au in a highly irradiated disk" Schroetter, Berné, Bron et al. *Nat Astron* (2025). <https://doi.org/10.1038/s41550-025-02596-6>
29. "PDRs4All : XIII. Empirical prescriptions for the interpretation of JWST imaging observations of star-forming regions" Chown, Okada, Peeters et al. *A&A*, 698, A86 (2025)
30. "PDRs4All : XII. Far-ultraviolet-driven formation of simple hydrocarbon radicals and their relation with polycyclic aromatic hydrocarbons" Goicoechea, Pety, Cuadrado et al. *A&A*, 696, A100 (2025)
31. "PDRs4All : X. ALMA and JWST detection of neutral carbon in the externally irradiated disk d203-506 : Undepleted gas-phase carbon" Goicoechea, Le Bourlot, Black et al. *A&A*, 689, L4 (2024)
32. "PDRs4All. IX. Sulfur elemental abundance in the Orion Bar" Fuente, Roueff, Le Petit et al. *A&A*, 687, A87 (2024)
33. "PDRs4All. VII. The $3.3\ \mu\text{m}$ aromatic infrared band as a tracer of physical properties of the interstellar medium in galaxies" Schroetter, Berné, Joblin et al. *A&A*, 685, A78 (2024)
34. "PDRs4All. VI. Probing the photochemical evolution of PAHs in the Orion Bar using machine learning techniques" Pasquini, Peeters, Schefter et al. *A&A*, 685, A77 (2024)
35. "OH as a probe of the warm-water cycle in planet-forming disks" Zannese, Tabone, Habart et al. *NatAs*, 8, 577 (2024)
36. "Astronomical CH_3^+ rovibrational assignments. A combined theoretical and experimental study validating observational findings in the d203-506 UV-irradiated protoplanetary disk" Changala, Chen, Li et al. *A&A*, 680, A19.
37. "PDRs4All. V. Modelling the dust evolution across the illuminated edge of the Orion Bar" Elyajouri, Ysard, Abergel et al. *A&A*, 685, A76 (2024)
38. "PDRs4All : III. JWST's NIR spectroscopic view of the Orion Bar" Peeters, Habart, Berné et al. *A&A*, 685, A74 (2024)
39. "PDRs4All. II. JWST's NIR and MIR imaging view of the Orion Nebula" Habart, Peeters, Berné et al. *A&A*, 685, A73 (2024)
40. "Molecules with ALMA at Planet-forming Scales (MAPS) : Complex Kinematics in the AS 209 Disk Induced by a Forming Planet and Disk Winds" Galloway-Sprietsma, Bae, Teague et al. *ApJ*, 950, 147 (2023)
41. "Molecules with ALMA at Planet-forming Scales (MAPS) : A Circumplanetary Disk Candidate in Molecular-line Emission in the AS 209 Disk" Bae, Teague, Andrews et al. *ApJL*, 934, L20 (2022)
42. "PDRs4All : A JWST Early Release Science Program on Radiative Feedback from Massive Stars" Berné, Habart, Peeters et al. *PASP*, 134, 054301 (2022)
43. "Molecules with ALMA at Planet-forming Scales (MAPS). I. Program Overview and Highlights" Öberg, Guzmán, Walsh et al. *ApJS*, 257, 1 (2021)
44. "Molecules with ALMA at Planet-forming Scales (MAPS). XVII. Determining the 2D Thermal Structure of the HD 163296 Disk" Calahan, Bergin, Zhang et al. *ApJS*, 257, 17 (2021)
45. "Molecules with ALMA at Planet-forming Scales (MAPS). XV. Tracing Protoplanetary Disk Structure within 20 au" Bosman, Bergin, Loomis et al. *ApJS*, 257, 15 (2021)
46. "Molecules with ALMA at Planet-forming Scales (MAPS). IV. Emission Surfaces and Vertical Distribution of Molecules" Law, Teague, Loomis et al. *ApJS*, 257, 4 (2021)
47. "Molecules with ALMA at Planet-forming Scales (MAPS). V. CO Gas Distributions" Zhang, Booth, Law et al. *ApJS*, 257, 5 (2021)
48. "Molecules with ALMA at Planet-forming Scales (MAPS). VI. Distribution of the Small Organics HCN, C_2H , and H_2CO " Guzmán, Bergner, Law et al. *ApJS*, 257, 6 (2021)
49. "Molecules with ALMA at Planet-forming Scales (MAPS). III. Characteristics of Radial Chemical

Substructures” Law, Loomis, Teague et al. ApJS, 257, 3 (2021)

50. “Long Baseline Observations of the HD 100546 Protoplanetary Disk with ALMA” Pérez, Casassus, Hales et al. ApJL, 889, L24 (2020)
51. “Dust traps in the protoplanetary disc MWC 758 : two vortices produced by two giant planets?” Baruteau, Barraza, Pérez et al. MNRAS, 486, 304 (2019)
52. “Cm-wavelength observations of MWC 758 : resolved dust trapping in a vortex” Casassus, Marino, Lyra et al. MNRAS, 483, 3278 (2019)
53. “An inner warp in the DoAr 44 T Tauri transition disc” Casassus, Avenhaus, Pérez et al. MNRAS, 477, 5104 (2018)

Submitted Articles :

54. “DEC/O : Benchmarking Protoplanetary Disk Chemistry Codes for C/H and C/O Retrievals” Anderson, Walsh, Aikawa et al., submitted to A&A.
55. “DEC/O I : A Chemical Census of 80 Planet-Forming Disks” Cleeves, Anderson, Guzmán et al., submitted to A&A.
56. “DEC/O IV. CO Visibility Modeling of Protoplanetary Disks : Gas Disk Sizes, Stellar Ages, and Radial Drift Signatures” Zallio, Rosotti, Vioque et al., submitted to A&A.
57. “The Disk-Exoplanet C/Onnection (DEC/O). VI. An Overview of Line Emission Radial Structure” Law, Cleeves, Green et al., submitted to A&A.
58. “DEC/O X : JWST and ALMA Reveal a Connection Between Inner- and Outer-Disk Carbon Chemistry” Colmenares, Bergin, Cleeves et al., submitted to A&A .
59. “DEC/O XI : Characterizing Formaldehyde (H₂CO) emission and excitation properties in protoplanetary disks” Hernández-Vera, Guzmán, Miotello et al., submitted to A&A.
60. “Slowly Spiraling CQ Tau : Constraints on Disk Pattern Drivers and Accreting Companions” Tobin, Cugno, Meyer et al., submitted to ApJ.