

# Jorge L. Pineda

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## Education

Ph. D., Astronomy, University of Bonn, Germany, 2007.  
M.S., Astronomy, University of Chile, Chile, 2003.  
B.S., Physics and Astronomy, University of Chile, 2002

## Professional Experience

### CURRENT POSITIONS:

**2014–present:** Research Scientist, Jet Propulsion Laboratory, California Institute of Technology  
**2011–2014:** Temporary Research Scientist, Jet Propulsion Laboratory, California Institute of Technology

### PREVIOUS POSITIONS:

**2008–2011:** Postdoc, Jet Propulsion Laboratory, California Institute of Technology  
**2007–2008:** Postdoc, Angeler Institut fuer Astronomie, University of Bonn

### Awards

**2017: JPL Bonus Team Award:** “for outstanding work on the Galactic/X-Gal ULDB Spectroscopy Terahertz Observatory proposal leading to selection by NASA”.

**2017: NASA Group Achievement Award** “for using the Herschel Space Observatory C+ line emission observations to trace Hydrogen abundance in the interstellar medium and the relation of the emission to star formation”.

**2016: NASA Exceptional Scientific Achievement Medal** “for the exceptional scientific achievement of using Herschel Space Observatory observations of ionized carbon to map galactic molecular hydrogen and trace star formation”.

**2014: JPL Ed Stone Award for Outstanding Publication** “for use of Herschel Space Observatory HIFI observations of ionized carbon to advance our understanding of the interstellar medium”.

**2014: JPL RT&D Research Poster Award Recipient** for poster entitled “A New Method for Determining Thermal Pressures in Interstellar Clouds in the Transition from Atomic to Molecular”.

**2010: NASA Group Achievement Award** “for contribution to the *Herschel HIFI Hardware Development Team*”.

**2002-2003: Grant MECESUP UCH0118** given by the Chilean Ministry of Education for M.S. Studies

## Selected Grants

**FY20-FY24 PI** APRA Suborbital Balloon, Astrophysics Stratospheric Telescope for High Spectral Resolution Observations at Submillimeter-wavelengths, ASTHROS.

## Peer-reviewed Publications

1. **Pineda J. L.**, Stutzki J., Buchbender C., Koda J. et al. 2020, “A SOFIA Survey of [CII] in the galaxy M51 II. [CII] and CO kinematics across spiral arms”, *ApJ*, 900, 132. doi:10.3847/1538-4357/abab0a
2. **Pineda, J.L.**, Horiuchi, S., Anderson, L.D., et al. 2019, “Electron Densities and Nitrogen Abundances in Ionized Gas Derived Using [NII] Fine-structure and Hydrogen Recombination lines”, *ApJ*, 886, 1
3. **Pineda, J. L.**, Fischer, Christian, Kapala, Maria, et al. 2018, A SOFIA Survey of [C II] in the Galaxy M51. I. [C II] as a Tracer of Star Formation, , *ApJL*, 869, L30
4. **Pineda, J. L.**, Goldsmith, Langer, W. D., et al. 2017, “Characterizing the formation and evolution of molecular clouds in the Magellanic Clouds with [CII], [CI], and CO”, *ApJ*, 839, 107
5. **Pineda, J. L.**, Langer, W. D., Goldsmith. 2014, GOTC+ [CII] Galactic Plane Survey II: [CII] as a Tracer of Star Formation, *A&A*, 570, AA121.
6. **Pineda, J. L.**, Langer, W. D., Velusamy, T., Goldsmith. 2013, GOTC+ [CII] Galactic Plane Survey I: The Global Distribution of ISM Gas Components *A&A*, 554, A103.
7. **Pineda, J.L.**, Mizuno, N., Röllig, M., et al., Submillimeter line emission from LMC 30 Doradus: The impact of a starburst on a low-metallicity environment, 2012, *A&A*, 544, A84.
8. **Pineda, J. L.** Velusamy, T., Langer, W. D., Goldsmith, P. F., Li. D. & Yorke, H.W. 2010. A Sample of [CII] Clouds Tracing Dense Clouds in Weak FUV Fields. *A&A*, 521, L19.
9. **Pineda, J.L.**, Goldsmith, P.F., Chapman, N.L., Li, D., Snell, R., Cambr´esy, L. & Brunt, C. 2010. The Relation between Dust and Gas in the Taurus Molecular Cloud. *ApJ*, 721, 686
10. **Pineda, J. L.**, Ott, J., Klein, U., Wong, T., Muller, E., & Hughes, A. 2009. The Influence of Far-Ultraviolet Radiation on the Properties of Molecular Clouds in the 30 Dor Region of the Large Magellanic Cloud. *ApJ*, 703, 736.

11. **Pineda, J.L.**, Mizuno, N., Stutzki, J., Cubick, M., et al. 2008. Submillimeter Line Emission from LMC N159W: a Dense, Clumpy PDR in a Low Metallicity Environment. *A&A*, 482, 197.
12. **Pineda, J. L.**, & Bensch, F. 2007. Photon-dominated region modeling of the CO and [CI] line emission in Barnard 68. *A&A*, 470, 615.
13. Stanke T., [20 authors], **Pineda, J.L.**, et al., 2022, The APEX Large CO Heterodyne Orion Legacy Survey (ALCOHOLS). I. Survey overview, *A&A*, 658, A178. Doi:10.1051/0004-6361/201937034
14. Gim H.-B., [10 authors], **Pineda, J.L.** et al., 2021, DIISC-I: The Discovery of Kinematically Anomalous HI Clouds in M 100 *ApJ*, 922, 69. doi:10.3847/1538-4357/ac2303
15. Skalidis R., Tassis K., Panopoulou G.V., **Pineda J.L.**, Gong Y., Mandarakas N., Blinov D., et al., 2021, HI-H2 transition: exploring the role of the magnetic field *arXiv:2110.11878*
16. Goldsmith P.-F., Langer W.D., Seo Y., **Pineda J. L.**, Stutzki J., Guevara C., Aladro R., et al., 2021, Interstellar Cloud Conditions Based on 63  $\mu\text{m}$  [O I] Emission and Absorption in W3, *ApJ*, 916, 6. doi:10.3847/1538-4357/abfb69
17. Langer W.D., **Pineda J.L.**, Goldsmith P.F., Chambers E.T., Riquelme D., Anderson L.D., Luisi M., et al., 2021, The dense warm ionized medium in the inner Galaxy, *A&A*, 651, A59. doi:10.1051/0004-6361/202040223
18. Seo Y.M., Dowell C.D., Goldsmith P.F., **Pineda J.L.**, Majumdar L., 2021, Probing Polarization and the Role of Magnetic Fields in Cloud Destruction in the Keyhole Nebula, *ApJ*, 917, 57. doi:10.3847/1538-4357/ac0c80
19. Linz H., [10 authors], **Pineda, J.L.**, et al. 2021, Bringing high spatial resolution to the far-infrared, *ExA*, 51, 661. doi:10.1007/s10686-021-09719-7
20. Kong S., [21 authors], **Pineda, J.L.**, et al., 2021, The CARMA-NRO Orion Survey—Data Release, *RNAAS*, 5, 55. doi:10.3847/2515-5172/abf051
21. Virkler K., Kocz J., Soriano M., Horiuchi S., **Pineda J.L.**, McNichols T., 2020, A Broadband Digital Spectrometer for the Deep Space Network, *ApJS*, 251, 1. doi:10.3847/1538-4365/abbae
22. Jones T.-J., Kim J.-A., Dowell C.-D., Morris M.-R., **Pineda J.-L.**, Benford D.-J., Berthoud M., et al., 2020, “HAWC+ Far-infrared Observations of the Magnetic Field Geometry in M51 and NGC 891”, *AJ*, 160, 167. doi:10.3847/1538-3881/abada8
23. Orr M.-E., Hayward C.-C., Medling A.-M., Gurvich A.-B., Hopkins P.-F., Murray N., **Pineda J.-L.**, et al., 2020, Swirls of FIRE: spatially resolved gas velocity dispersions and star formation rates in FIRE-2 disc environments *MNRAS*, 496, 1620. doi:10.1093/mnras/staa1619
24. Seo, Y., [20 authors], **Pineda, J. L.**, [8 authors], Probing ISM Structure in Trumpler 14 & Carina I Using The Stratospheric Terahertz Observatory 2, 2019, *ApJ*, , 878, 120
25. Langer, W. D.; Goldsmith, P. F.; **Pineda, J. L.**; Chambers, E. T.; Jacobs, K.; Richter, H., 2018, The nature of molecular cloud boundary layers from SOFIA [O I] observations, *A&A*, 617, A94

26. Rice, J.S., Federman, S.R., Flagey, N., Goldsmith, P.F, Langer, W.D., **Pineda, J.L.**, Lambert, D. L. et al. 2018, The Connection between Different Tracers of the Diffuse Interstellar Medium: Kinematics ,ApJ, 858, 111
27. Kong, S. [30 authors], **Pineda, J. L.**, [6 authors], “The CARMA-NRO Orion Survey”, ApJS, ApJS, 236, 25.
28. Goldsmith, P.F, **Pineda, J.L.**, Neufeld, D. A., Wolfire, M.G., Risacher, C., Simon, R. 2018, “Velocity Resolved [CII] Emission from Cold Diffuse Clouds in the Interstellar Medium”, 2018, ApJ, 856, 96.
29. Li, D., [13 authors], **Pineda, J.L.**, [3 authors] 2018, “Where is OH and Does It Trace the Dark Molecular Gas (DMG)?” ApJS, 235, 1
30. Wong, T., [18 authors], **Pineda, J.L.**, [2 authors], 2017, “ALMA Observations of a Quiescent Molecular Cloud in the Large Magellanic Cloud”, ApJ, 850, 139
31. Langer, W.D., Velusamy, T., Goldsmith, P.F., **Pineda, J.L.**, [4 authors], 2017, “Ionized gas in the Scutum spiral arm as traced in [N II] and [C II]”, A&A, 607, A59
32. Tang, N., [9 authors], **Pineda, J.L.**, [1 author] 2017, “OH Survey along Sightlines of Galactic Observations of Terahertz C+”, ApJ, 839, 8
33. Velusamy, T., Langer, W., Goldsmith, P., & **Pineda, J.L.** 2017, “Thermal Pressure in Diffuse H<sub>2</sub> Gas Measured by Herschel [C II] Emission and FUSE UV H<sub>2</sub> Absorption”, ApJ, 838, 165
34. Langer, W.D., Velusamy, T., Morris, M. R., Goldsmith, P.F., & **Pineda, J.L.** 2017, “Kinematics and properties of the central molecular zone as probed with [CII]” 599, A136
35. Stephens, Ian W.; [9 authors], **Pineda, J. L.**; [2 authors] 2017, “Stellar clusterings around “Isolated” Massive YSOs in the LMC”, 2017 ApJ, 834, 94
36. Heyer, M.; Goldsmith, P. F.; Yildiz, U. A.; Snell, R. L.; Falgarone, E.; **Pineda, J. L.**, 2016, “Striations in the Taurus molecular cloud: Kelvin–Helmholtz instability or MHD waves?” MNRAS, 461, 3918
37. Langer, W.D., P.F. Goldsmith, & **Pineda J.L.**, 2016, “[CII] and [NII] from dense ionized regions in the Galaxy”, A&A, A&A, 590, A43
38. Goldsmith, P. F., **Pineda, J. L.**, Langer, W. D., et al. 2016, “L1599B: Cloud Envelope and C+ Emission in a Region of Moderately Enhanced Radiation Field” ApJ, 824, 141
39. Goldsmith, P. F., Yildiz, U.A., Langer, W.D., & **Pineda, J.L.** 2015, Herschel Galactic Plane Survey of [NII] Fine Structure Emission, ApJ, 814, 133
40. Langer, W. D. and **Pineda, J. L.** [CII] emission from galactic nuclei in the presence of X-rays. 2015, A&A, 580, A5
41. Velusamy, T., Langer, W. D., Goldsmith, P. F., & **Pineda, J.L.** 2015, Internal structure of spiral arms traced with [C II]: Unraveling the warm ionized medium, HI, and molecular emission lanes, A&A, 578, A135
42. Langer, W. D., Goldsmith, P.F., **Pineda, J.L.**, et al. 2015, Ionized gas at the edge of the Central Molecular Zone, 2015, 576, A1
43. Orr, M., **Pineda, J. L.**, & Goldsmith, P. 2014, Photon-dominated Region Modeling of the [C I], [C II], and CO Line Emission from a Boundary in the Taurus Molecular Cloud ApJ j, 795, 26

44. Anderson, C.N., Meier, D.S., Ott, J., [7 authors], **Pineda, J. L.**, Seale, J. From Gas to Stars in Energetic Environments: Dense Gas Clumps in the 30 Doradus Region Within the Large Magellanic Cloud 2014, *ApJ*, 793, 37
45. Langer, W.D., **Pineda, J.L.**, & Velusamy, T. The scale height of gas traced by [CII] in the Galactic plane, 2014, *A&A* , 564, A101.
46. Langer, W. D.; Velusamy, T.; **Pineda, J. L.**; Willacy, K.; Goldsmith, P. F., A Herschel [C II] Galactic plane survey II: CO-dark H<sub>2</sub> in clouds, 2013, *A&A* 564, 101.
47. Burton, M; [7 Authors], **Pineda, J.L.**, The Mopra Southern Galactic Plane CO Survey, 2013, *PASA*, 30, 44
48. Goldsmith, P.F., Langer, W.D., **Pineda, J.L.**, & Velusamy, T. 2012, Collisional Excitation of the [C II] Fine Structure Transition in Interstellar Clouds, *ApJ*, 203, 13
49. Seale, J.P., Looney, L.W., Wong, T., Ott, J., Klein, U., **Pineda, J.L.**, The Life and Death of Dense Molecular Clumps in the Large Magellanic Cloud, 2012, *ApJ*, 751, 42.
50. Velusamy, T., Langer, W.D., **Pineda, J.L.**, & Goldsmith, P.F., [CII] 158  $\mu$ m line detection of the warm ionized medium in the Scutum-Crux spiral arm tangency, 2012, *A&A*, 541, L10.
51. Wong, T., Hughes, A., Ott, J., Muller, E., **Pineda, J.L.**, et al, The Magellanic Mopra Assessment (MAGMA). I. The Molecular Cloud Population of the Large Magellanic Cloud, 2011, *ApJS*, 197, 16.
52. Chapman, N.L., Goldsmith, P.~F., **Pineda, J.L.**, et al, The Magnetic Field in Taurus Probed by Infrared Polarization, 2011, *ApJ*, 741, 21.
53. Röllig, M. [27 authors], **Pineda, J.L.**, [6 authors] , Photon dominated regions in NGC 3603. [CI] and mid-J CO line emission, 2011, *A&A* , 525, A8.
54. Langer, W. D., Velusamy, T., **J. L. Pineda**, Goldsmith, P. F., Li. D. & Yorke, H.W. C+ Detection of Warm Dark Gas in Diffuse Clouds, 2010. *A&A*, 521, L17.
55. Velusamy, T., Langer, W. D., **J. L. Pineda**, Goldsmith, P. F., Li. D. & Yorke, H.W., [CII] Observations of H<sub>2</sub> Molecular Layers in Transition Clouds, 2010. *A&A*, 521, L18.
56. Whittet D.C.B., Goldsmith, P.F., **Pineda, J.L.**, 2010. The Uptake of Interstellar Gaseous CO Into Icy Grain Mantles in a Quiescent Dark Cloud. *ApJ*, 720, 259.
57. Tassis, K.; Christie, D. A.; Urban, A.; **Pineda, J. L.**; Mouschovias, T. Ch.; Yorke, H. W.; Martel, H. 2010. Do Lognormal Column-Density Distributions in Molecular Clouds Imply Supersonic Turbulence? *MNRAS*, 408, 1089.
58. Desai, K. M.; Chu, Y. -H.; Gruendl, R. A.; Dluger, W.; Katz, M.; Wong, T.; Chen, C. -H. R.; Looney, L. W.; Hughes, A.; Muller, E.; Ott, **J.**; **Pineda, J. L.** 2010. Supernova Remnants and Star Formation in the Large Magellanic Cloud. *AJ*, 140, 584.
59. Roman-Duval, J. [21 authors], **Pineda, J.L.**, [2 authors] 2010. Dust/gas correlations from Herschel Observations. *A&A*, 518, 74.
60. Hughes, A.; Wong, T.; Ott, J.; Muller, E.; **Pineda, J. L.** et al. 2010. Physical properties of giant molecular clouds in the Large Magellanic Cloud. *MNRAS*, 873.

61. Muller, E., Ott, J., Hughes, A., **Pineda, J. L.**, & Wong, T. 2009. Characterizing the Low-Mass Molecular Component in the Northern Small Magellanic Cloud. *ApJ*, 712, 1248.
62. Mizuno, Y., [9 authors], **Pineda, J.L.**, [21 authors], 2009. Warm and Dense Molecular Gas in the N159 Region: 12CO J=4-3 and 13CO J=3-2 Observations with NANTEN2 and ASTE. *PASJ*, 62, 51.
63. Wong, T., [6 authors], **Pineda, J.L.**, [5 authors], 2009. Molecular and Atomic Gas in the Large Magellanic Cloud. I. Conditions for CO Detection. *ApJ*, 696, 370.
64. Ott, J, Wong, T, **Pineda, J.L.** et al. The Molecular Ridge Close to 30 Doradus in the Large Magellanic Cloud, *PASA*, 25, 129.
65. Hitschfeld, M. [22 authors], **Pineda, J.L.**, [9 authors] 2008. 12 CO 4-3 and [CI] 1-0 at the centers of NGC 4945 and Circinus. *A&A*, 479, 75.
66. Kramer, C. [24 Authors], **Pineda, J. L.**, [7 authors] 2008, Clumpy Photon-Dominated Regions in Carina. I. [C I] and Mid-J CO Lines in Two 4'4' Fields, *A & A*, 477, 547.
67. Minamidani, T., [14 authors], Pineda, J. L., [12 authors], 2008. Sub-millimeter Observations of Giant Molecular Clouds in the LMC: Temperature and Density as Determined from  $J = 3 \rightarrow 2$  and  $J = 1 \rightarrow 0$  Transitions, *Ap. JS*, S, 175, 485.
68. Dickinson, C., Casassus, S., **Pineda, J. L.**, Pearson, T. J., Readhead, A. C. S., & Davies, R. D. 2006. An Upper Limit on Anomalous Dust Emission at 31 GHz in the Diffuse Cloud [LPH96] 201.663+1.643. *ApJL*, 643, L111.