

# PAUL F. GOLDSMITH

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## *Curriculum Vitae*

### EDUCATION

American School of Paris, France	High School Diploma 1965
University of California, Berkeley	A.B. (Physics) 1969
University of California, Berkeley	Ph.D. (Physics) 1975

### POSITIONS HELD

2016 -	JPL-Caltech Technology Liason
2015 -	Supervisor, Group 3266, Evolution of the Universe, JPL
2014 - 2015	Technology Liason, Keck Institute for Space Studies, Calif. Inst. Technology, Pasadena
2009 -	Adjunct Professor of Astronomy, University of Arizona, Tucson
2008 - 2015	Chief Technologist, Astronomy and Physics Directorate, Jet Propulsion Laboratory
2006 -	Senior Research Scientist, Jet Propulsion Laboratory
	Visiting Associate, Department of Astronomy, Calif. Inst. Technology, Pasadena
2006 - 2017	NASA Project Scientist, Herschel Space Observatory
2006 - 2008	Supervisor, Group 3266, Evolution of Galaxies, JPL
2005 - 2006	Principal Scientist, Jet Propulsion Laboratory, Calif. Inst. Technology, Pasadena
2005 -	Professor Emeritus of Astronomy, Cornell University
2000,2001,2004	Professeur Invité, Ecole Normale Supérieure, Paris, France
1999 - 2005	James Weeks Professor in the Physical Sciences, Department of Astronomy, Cornell University
1993 - 2002	Director, National Astronomy and Ionosphere Center
1993 - 2005	Professor, Department of Astronomy, Cornell University
1986 - 1992	Professor, Dept. of Physics & Astronomy, University of Massachusetts, Amherst
1982 - 1992	Vice President of Research and Development, Millitech Corporation
1981 - 1986	Associate Professor, Dept. of Physics & Astronomy, Univ. of Massachusetts, Amherst
1980 - 1992	Associate Director, Five College Radio Astronomy Observatory
1977 - 1980	Consultant, Lincoln Laboratory, Lexington, Massachusetts
1977 - 1979	Resident Visitor, Bell Laboratories, Holmdel, New Jersey
1977 - 1981	Assistant Professor, Dept. of Physics & Astronomy, Univ. of Massachusetts, Amherst
1975 - 1977	Member Technical Staff, Bell Laboratories, Crawford Hill Laboratory, New Jersey
1971 - 1975	Research Assistant, Dept. of Physics, University of California, Berkeley
1969 - 1970	Research Physicist, Lawrence Radiation Laboratory, Berkeley, California

## HONORS AND AWARDS

Joseph Weber Award for Astronomical Instrumentation, American Astronomical Society, 2024  
Best Paper Award, AIAA Spacecraft Structures (co-recipient; Manan et al. 2023), 2023  
Kenneth J. Button Prize, International Society of Infrared, Millimeter, and Infrared Waves, 2020  
NASA Exceptional Scientific Achievement Medal, 2012, 2020  
Edward Stone Award for Outstanding Research Publication, JPL, 2012  
NASA Group Achievement Award, 2010  
NASA Exceptional Achievement Medal, 2010  
James Weeks Professor in the Physical Sciences, Cornell University, 1999  
Distinguished Lecturer, IEEE Microwave Theory and Techniques Society, 1992  
Fellow, Institute of Electrical and Electronics Engineers, 1991

## NATIONAL & INTERNATIONAL COMMITTEE SERVICE

Joseph Weber Award for Astronomical Instrumentation Committee, American Astronomical Society, 2003-2005

Chair, Scientific and Technical Advisory Committee for Large Millimeter Telescope (LMT) University of Massachusetts, Amherst, and INAOE (Mexico), 1994 -

## PUBLICATIONS

### Refereed Articles

“Collisional Excitation of Carbon Monoxide in Interstellar Clouds,” Goldsmith, P.F., Ap.J., 176, 597, 1972.

“Measurement of Atmospheric Attenuation at 1.3 and 0.87 mm with an Harmonic Mixing Radiometer,” Goldsmith, P.F., Plambeck, R., and Chiao, R., IEEE Trans. Microwave Theory Tech., MTT-22, 1115, 1974.

“Observations of the  $J = 2-1$  Transition of Carbon Monoxide in Interstellar Clouds,” Goldsmith, P.F., Plambeck, R., and Chiao, R., Ap.J., 196, L39, 1975.

“Observations of the  $^{12}\text{C}/^{13}\text{C}$  Ratio in Four Galactic Sources of Formaldehyde,” Matsakis, D., Chui, M., Goldsmith, P.F., and Townes, C.H., Ap.J. (Lett.), 206, L63, 1976.

“A 230 GHz Radiometer System Employing a Second Harmonic Mixer,” Goldsmith, P.F., and Plambeck, R., IEEE Trans. Microwave Theory Tech., MTT-24, 859, 1976.

“Rotational Excitation of Molecules by Electrons in Interstellar Clouds,” Dickinson, A.S., Phillips, T.G., Goldsmith, P.F., Percival, I.C., and Richards, D., Astron. Astrophys., 54, 645, 1977.

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“Isotopic Abundance Variations in Interstellar HCN,” Linke, R.A., Goldsmith, P.F., Wannier, P.G., Wilson, R.W., and Penzias, A.A., Ap.J., 214, 50, 1977.

“A Quasioptical Feed System for Radioastronomical Observations at Millimeter Wavelengths, Goldsmith, P.F., B.S.T.J., 56, 1483, 1977.

“Molecular Cooling and Thermal Balance of Dense Interstellar Clouds,” Goldsmith, P.F. and Langer, W.D., Ap.J., 222, 881, 1978.

“Carbon Monoxide Mixing Ratio in the Mesosphere Derived From Ground-Based Microwave Measurements,” Goldsmith, P.F., Litvak, M.M., Plambeck, R.L., and Williams, D.R.W., J. Geophys. Res., 84, 416, 1979.

“Microwave Radiometer Blackbody Calibration Standard for Use at Millimeter Wavelengths,” Goldsmith, P.F., Kot, R.A., and Iwasaki, R.S., Rev. Sci. Instrum., 50(9), 1120, 1979.

“Tunable Submillimeter Sources Applied to Excited State Rotational Spectroscopy and Kinetics of CH<sub>3</sub>F,” Blumberg, W., Fetterman, H., Goldsmith, P.F., and Peck, D., Appl. Phys. Lett., 35(8), 1979.

“Evidence for Isotopic Fractionation of Carbon Monoxide in Dark Clouds,” Langer, W.D., Goldsmith, P.F., Carlson, E.R., and Wilson, R.W., Ap.J. (Lett.), 235, L39, 1980.

“Observations of Interstellar Carbon Monosulfide – Evidence for Turbulent Cores in Giant Molecular Clouds,” Linke, R.A. and Goldsmith, P.F., Ap.J., 235, 437, 1980.

“Baseline Ripple Reduction by Quasi-Optical Phase Modulation,” Goldsmith, P.F. and Scoville, N.Z., Astron. Astrophys., 82, 337, 1980.

“High Angular Resolution Observations of CS in the Orion Nebula,” Goldsmith, P.F., Langer, W.D., Schloerb, F.P., and Scoville, N.Z., Ap.J., 240, 524, 1980.

“A Quasi-Optical Single Sideband Filter Employing a Semiconfocal Resonator,” Goldsmith, P.F. and Schlossberg, H., IEEE Trans. Microwave. Theory. Tech., MTT-28, 1136, 1980.

“CO Abundance and Isotopic Fractionation in Dark Clouds,” Goldsmith, P.F., Langer, W.D., Carlson, E.R., and Wilson, R.W., Proc. IAU Symposium 87: Interstellar Molecules, B.H. Andrew, ed., Dordrecht: Reidel, 417, 1980.

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“Detection of the  $J = 6-5$  Transition of Carbon Monoxide,” Goldsmith, P.F., Erickson, N.R., Fetterman, H.R., Clifton, B.J., Peck, D.D., Tannenwald, P.E., Koepf, G.A., Buhl, D., and McAvoy, N., *Ap.J.(Lett.)*, 243, L79, 1981.

“A Determination of the Carbon and Oxygen Isotopic Ratios in the Local Interstellar Medium,” Wilson, R.W., Langer, W.D., and Goldsmith, P.F., *Ap.J.(Lett.)*, 243, L47, 1981.

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- “HCN Emission from OH Infrared Sources,” Deguchi, S. and Goldsmith, P.F., *Nature*, 317, 336, 1985.
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- “Further Study of Vibrationally Excited Cyanoacetylene in Orion IRC2 and Other Sources,” Goldsmith, P.F., Krotkov, R., and Snell, R.L., *Ap.J.*, 299, 40, 1985.
- “Waveguide Submillimeter Mixers,” *Proc. Conf. on Instrumentation for Submillimeter Spectroscopy*, SPIE 598, Cannes, 52, 1985.
- “Molecular Outflows Associated with IRAS Sources in B5,” Langer, W.D., Goldsmith, P.F., and Wilson, R.W., *Proc. Haystack Meeting, Masers, Molecules, and Mass Outflows in Star Forming Regions*, A.D. Haschick, ed., 169, 1986.
- “Holographic Measurements,” Goldsmith, P.F. and Erickson, N.R., in *Radio Astronomy* (2nd edition) by J. Kraus. Powell: Cygnus-Quasar Books, 6-62, 1986.
- “Gaussian Beam Transformation with Cylindrical Lenses,” Goldsmith, P.F., *IEEE Trans. Antennas Propag.*, AP-34, 603, 1986.
- “A Detailed Examination of the Kinematics of Rotating Clouds,” Arquilla R. and Goldsmith, P.F., *Ap.J.*, 303, 356, 1986.

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“Molecular Outflows, Gas Density Distribution, and the Effects of Star Formation in the Dark Cloud B5,” Goldsmith, P.F., Langer, W.D., and Wilson, R.W., *Ap.J.(Lett.)*, 303, L11, 1986.

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