

HUMBERTO CAMPINS

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CITIZENSHIP: United States

EDUCATION

BA, Astronomy, University of Kansas, 1977
MS, Planetary Sciences, University of Arizona, 1982
PhD, Planetary Sciences, University of Arizona, 1982

PROFESSIONAL EXPERIENCE

- a) Provost Research Professor of Physics and Astronomy, University of Central Florida, Orlando, Florida. August 2002- present.
- b) Program Officer, Research Corporation, and Senior Research Scientist, Lunar and Planetary Laboratory, University of Arizona, Tucson, Arizona. June 1998-August 2002.
- c) University of Florida, Department of Astronomy
August 1997 - June 1998, Professor
August 1991 - July 1997, Associate Professor
August 1989 - July 1991, Assistant Professor
- d) Research Scientist, Planetary Science Institute, 1985 - 1989
- e) Research Associate, Astronomy Program, University of Maryland, 1982 -1985.
- f) Consultant, Committee on Peaceful Uses of Outer Space of the General Assembly of the United Nations, 1980 - 1982.

Selected Activities

Boards and Science Management

Member, Advisory Board for the University of Miami's Promise Program on Science and Diversity 2003-present.

Trustee, Planetary Science Institute, Tucson, Arizona. 2002 – 2005.

Member, USRA's Lunar & Planetary Institute Science Council (Board of the Lunar & Planetary Institute, Houston, TX), Feb. 1996 – 2002.

Member, Search Committee for the Director of USRA's Lunar & Planetary Institute. May-Aug. 2001.

Director, Florida Space Grant Consortium, November 1994 - June 1998

Assistant Discipline Specialist for the Photometry Net of the International Halley Watch, 1982 - 1985.

Spacecraft and other NASA Teams

Science Team Member NASA's OSIRIS-Rex Asteroid Sample Return Mission, 2010-present.

US member of the European Space Agency's Marco Polo mission, 2007-present.

Principal Investigator and Co-Investigator on four Spitzer Space Telescope projects to study Comets and Asteroids, 2004 – 2010.

NASA's Stratospheric Observatory for Infrared Astronomy (SOFIA) EPO Working Group, 2003 - present.

Principal Investigator on a Hubble Space Telescope project to study Comet-Asteroid Transition Objects, October 1997 - 2000.

Associate team member, ISOPHOT instrument on the European Space Agency's Infrared Space Observatory, 1990 - 1998.

Member, NASA-ESA Comet Nucleus Sample Return Science Definition Team, 1986-88.

Principal Investigator on the airborne observations of the dust in Comet Halley, 1985-87.

Chairman, NASA-SAIC Workshop on Comet Nucleus Sample Return Modeling, March 1985.

PROFESSIONAL ORGANIZATIONS

International Astronomical Union and COSPAR

American Astronomical Society and Division for Planetary Science

PRIZES and FELLOWSHIPS

Fulbright Senior Award, 2008-2009.

Teaching Award, University of Florida, 1993.

Asteroid 3327 named Campins by the International Astronomical Union in 1987.

SAIC Prize for the Outstanding Physics (Astrophysics) Publication of 1987.

NASA-Ames Research Center Achievement Award, 1987.

Fellowship from the National Research Council of Venezuela (CONICIT), 1977 - 1982.

Scholarship Universite' de Strasbourg (Louis Pasteur Observatory/University of Kansas), 1977.

SELECTED REFEREED PUBLICATIONS OF HUMBERTO CAMPINS

1. "Evaporating asteroid" by Campins, H., and Comfort, C. (2014), *Nature*, Volume 505, Issue 6484, p. 487-488
2. "Thermal infrared observations and thermophysical characterization of OSIRIS-REx target asteroid (101955) Bennu" by Emery, J., Fernandez, Y., Kelley, M., Warden, K., Hergenrother, C., Lauretta, D., Drake, M., Campins, H., and Ziffer, J. (2014), *Icarus*, Volume 234, p. 17-35
3. "Thermal properties, sizes, and size distribution of Jupiter-family cometary nuclei" by Fernandez, Y., Kelley, M., Lamy, P., Toth, I., Groussin, O., Lisse, C., A'Hearn, M., Bauer, J., Campins, H., and 8 coauthors (2013), *Icarus*, Volume 226, Issue 1, p. 1138-1170
4. "Lightcurve, Color, and Phase Function Photometry of the OSIRIS-REx Target Asteroid (101955) Bennu" by Hergenrother, C., Nolan, M., Binzel, R., Cloutis, E., Barucci, M., Michel, P., Scheeres, D., d'Aubigny, C., Lazzaro, D., Pinilla-Alonso, N., Campins, H., and 5 coauthors (2013), *Icarus*, Volume 226, Issue 1, p. 663-670
5. "The Origin of Asteroid 162173 (1999 JU3)" by Campins, H., et. al. (2013), *The Astronomical Journal*, Volume 146, Issue 2, article id 26, 6 pp
6. "Additional spectra of asteroid 1996 FG3, backup target of the ESA MarcoPolo-R mission" by de Leon, J., Lorenzi, V., Ali-Lagoa, V., Licandro, J., Pinilla-Alonso, N., Campins, H. (2013), *Astronomy & Astrophysics*, Volume 556, id A33, 4 pp
7. "The persistent activity of Jupiter-family comets at 3-7 AU" by Kelley, M., Fernandez, Y., Licandro, J., Lisse, C., Reach, W., A'Hearn, M., Baur, J., Campins, H., and 9 coauthors (2013), *Icarus*, Volume 225, Issue 1, p. 475-494
8. "Physical properties of B-type asteroids from WISE data" by Ali-Lagoa, V., de Leon, J., Licandro, J., Delbo, M., Campins, H., Pinilla-Alonso, N., and Kelley, M. (2013), *Astronomy & Astrophysics*, Volume 554, id A71, 16 pp
9. "Near-infrared spectroscopy of 1999 JU3, the target of the Hayabusa 2 mission" by Pinilla-Alonso, N., Lorenzi, V., Campins, H., de Leon, J., and Licandro, J. (2013), *Astronomy & Astrophysics*, Volume 552, id A79, 3pp

10. “The temporal evolution of the July 2009 Jupiter impact cloud” by Baines, K., Yanamandra-Fisher, P, Momary, T., Orton, G., Villar, G., Fletcher, L., Campins, H., Rivkin, A., and Shara, M. (2013), *Planetary and Space Science*, Volume 77, p. 25-39
11. “Spectra of asteroid families in support of Gaia” by Campins, H., de León, J., Licandro, J., Kelley, M. S., Fernández, Y., Ziffer, J., and Nesvorný, D. (2012), *Planetary and Space Science*, Volume 73, p. 95-97
12. “Challenges for the scientific exploitation of Gaia observations of solar system objects” by Tanga, P., Campins, H., Paolicchi, P. (2012), *Planetary and Space Science*, Vol. 73, p. 95-97
13. “Asteroids (65) Cybele, (107) Camilla and (121) Hermione: Infrared spectral diversity among the Cybeles” by Hargrove, K., Kelley, M., Campins, H., Licandro, J., Emery, J. (2012), *Icarus*, Volume 221, p. 453-455
14. “The radial distribution of dust species in young brown dwarf discs” by Riaz, B.; Honda, M.; Campins, H; Micela, G; Guarcello, M.G.; Gledhill, T.; Hough, J.; Martín, E. L. (2012) *Monthly Notices of the Royal Astronomical Society*, vol. 420, 2603-2624.
15. “Near-infrared spectroscopic survey of B-type asteroids: Compositional analysis” by de León, J; Pinilla-Alonso, N; Campins, H; Licandrao, J; Marzo, G. A. (2012) *Icarus*, vol. 218, 196-206.
16. “5-14 μm Spitzer spectra of Themis family asteroids” by Licandro, J.; Hargrove, K.; Kelley, M.; Campins, H; Ziffer, J.; Alí-Lagoa, V.; Fernández, Y.; Rivkin, A. (2012) *Astronomy & Astrophysics*, vol. 537, id. A74
17. “Organic materials in planetary and protoplanetary systems: nature or nurture?” by Dalle Ore, C. M.; Fulchignoni, M.; Cruikshank, D. P.; Barucci, M. A.; Brunetto, R.; Campins, H; and fourteen other co-authors (2011) *Astronomy & Physics*, vol. 533 id.A98.
18. “Long-term evolution of the aerosol debris cloud produced by the 2009 impact on Jupiter” by International Outer PLANET Watch Team Iopw-Pvol Sánchez-Lavega, A.; Orton, G. S.; Hueso, R.; Pérez-Hoyos, S.; Fletcher, L. N.; García-Melendo, E.; Gomez-Forrellad, J. M.; de Pater, I.; Wong, M.; Hammel, H. B.; Yanamandra-Fisher, P.; Simon-Miller, A.; Barrado-Izagirre, N.; Marchis, F.; Mousis, O.; Ortiz, J. L.; García-Rojas, J.; Cecconi, M.; Clarke, J. T.; Noll, K.; Pedraz, S.; Wesley, A.; Kalas, P.; McConnell, N.; Golisch, W.; Griep, D.; Sears, P.; Volquardsen, E.; Reddy, V.; Shara, M.; Binzel, R.; Grundy, W.; Emery, J.; Rivkin, A.; Thomas, C.; Trilling, D.; Bjorkman, K.; Burgasser, A. J.; Campins, H; Sato, T. M.; Kasaba, Y.; Ziffer, J.; Mirzoyan, R.; Fitzgerald, M.; Bouy, H. (2011) *Icarus*, vol. 214, 432-476.
19. “Testing the comet nature of main belt comets. The spectra of 133P/Elst-Pizarro and 176P/LINEAR” by Licandro, J.; Campins, H; Tozzi, G. P.; de León, J.; Pinilla-Alonso, N.; Boehnhardt, H.; Hainaut, O. R. (2011) *Astronomy & Astrophysics*, Volume 532, id.A65
20. “Near-infrared spectroscopy of primitive asteroid families” by Ziffer, J.; Campins, H; Licandro, J.; Walker, M. E.; Fernandez, Y.; Clark, B. E.; Mothe-Diniz, T.; Howell, E.; Deshpande, R. (2011). *Icarus*, Volume 213, p. 538-546.
21. “New observations of asteroid (175706) 1996 FG3, primary target of the ESA Marco Polo-R mission” by de León, J.; Mothé-Diniz, T.; Licandro, J.; Pinilla-Alonso, N.; Campins, H. (2011) *Astronomy & Astrophysics*, Volume 530, id.L12.
22. “(65) Cybele: Detection of Small Silicate Grains, Water-ice, and Organics” by Licandro, J., Campins, H., Kelley, M., Hargrove, K., Pinilla-Alonso, N., Cruikshank, D., Rivkin, A. S., and Emery, J. (2011), *Astronomy and Astrophysics*, 525, A34

23. “Near-infrared spectroscopy of primitive asteroid families” by Ziffer, J., Campins, H., Licandro, J., Walker, M. E., Fernandez, Y., Clark, B. E., Mothe-Diniz, T., Howell, E., Deshpande, R. (2011) *Icarus*, Vol. 213, p. 538-546
24. “New observations of asteroid (175706) 1996 FG3, primary target of the ESA Marco Polo-R mission” by de León, J.; Mothé-Diniz, T.; Licandro, J.; Pinilla-Alonso, N.; Campins, H. (2011) *Astronomy & Astrophysics*, Volume 530, id.L12
25. “Water ice and organics on the surface of the asteroid 24 Themis” by Campins, H., Hargrove, K., Pinilla-Alonso, N, Howell, E., Kelley, M., S., Licandro, J., Mothé-Diniz, T., Fernández, Y., and Ziffer, J. (2010) *Nature*, vol. 464, 1320-1321.
26. “The Origin of Asteroid 101955 (1999 RQ₃₆)” by Campins, H., Morbidelli, A., Tsiganis, K., de León, J., Licandro J., and Lauretta, D. (2010) *Astrophys. J. Lett.*, vol. 721, L53.
27. “Observations, compositional, and physical characterization of near-Earth and Mars-crosser asteroids from a spectroscopic survey” by de León, J., Licandro, J., Serra-Ricart, M., Pinilla-Alonso, N., and Campins, H. (2010) *Ast. & Astroph.* vol. 517, A23.
28. “Origin of the near-Earth asteroid Phaethon and the Geminids meteor shower” by de León, J., Campins, H., Tsiganis, K., Morbidelli, A., and Licandro, J. (2010) *Ast. & Astroph.* vol. 513, A26
29. “Spectroscopy of B-type asteroids: Subgroups and meteorite analogs” by Clark, B. E., Ziffer, J., Nesvorny, D., Campins, H., and 10 other coauthors. (2010) *Journal of Geophysical Res.*, vol. 115, E6.
30. “Sources of Terrestrial and Martian Water” by Campins, H. and Drake, M. (2010) in “Water & life: the unique properties of H₂O” Eds. R. Lynden-Bell et al. CRC Press, pp. 221- 234.
31. “Asteroid (101955) 1999 RQ36: Optimum Target for an Asteroid Sample Return Mission” by Lauretta, D. S.; Drake, M. J.; Benzel, R. P.; Campins, H.; Chesley, S. R.; Clark, B. E.; Delbo, M.; Emery, J. P.; Hergenrother, C. A.; Nolan, M. C.; Scheeres, D. J.; Osiris-Rex Team. (2010) *Meteoritics and Planetary Science*, vol. 73, 5153L.
32. “Spitzer observations of the asteroid-comet transition object and potential spacecraft target 107P (4015) Wilson-Harrington” by Licandro, J.; Campins, H.; Kelley, M.; Fernández, Y.; Delbó, M.; Reach, W. T.; Groussin, O.; Lamy, P. L.; Toth, I.; A'Hearn, M. F.; and 8 coauthors (2010). *Astronomy and Astrophysics*, vol. 507, 1666-1670.
33. “Low Perihelion Near-Earth Asteroids” by Campins, H., Kelley, M. S.; Fernández, Y.; Licandro, J.; Hargrove, K. (2009) *Earth, Moon, and Planets*, vol. 105, 159-165
34. “Spitzer observations of spacecraft target 162173 (1999 JU3)” by Campins, H., Emery, J. P.; Kelley, M. S.; Fernández, Y.; Licandro, J.; Delbó, M.; Barucci, A.; Dotto, E. (2009) *Astronomy and Astrophysics*, vol. 503, L17-L20.
35. “Chemical and physical properties of gas jets in comets I. Monte Carlo model of an inner cometary coma” by S.M. Lederer, H. Campins and D.J. Osip (2009) *Icarus*, vol. 199, 477-483.
36. “Chemical and physical properties of gas jets in comets II. Modeling OH, CN and C₂ jets in Comet C/1995 O1 (Hale-Bopp) one month after perihelion” by S.M. Lederer, H. Campins and D.J. Osip (2009) *Icarus*, vol. 199, 484-504.
37. “Spectral properties of asteroids in cometary orbits” by J. Licandro, A. Alvarez-Candal, J. de León, N. Pinilla-Alonso, D. Lazzaro, and H. Campins (2008) *Astron. & Astrophys.* vol. 481, 861-877.
38. “Nuclear Spectra of Comet 28P Neujmin 1” by H. Campins, J. Licandro, N. Pinilla-Alonso, J. Ziffer, J. de León, T. Mothé-Diniz, J. C. Guerra, and C. Hergenrother (2007) *Astronomical J.*, 134, 1626-1633.

39. "Comet Hale Bopp in outburst: Imaging the dynamics of icy particles with HST/NICMOS" by D. W. McCarthy, S. R. Stolovy, H. Campins, S. Larson, N. H. Samarasinha, and S. D. Kern (2007) *Icarus*, vol. 189, 184-195.
40. "The nature of comet-asteroid transition object (3200) Phaethon" (2007) J. Licandro H. Campins, T. Mothe-Diniz, N. Pinilla-Alonso, and J. de Leon (2006) *Astron. & Astrophys.* vol. 461, 751-757.
41. "A Spitzer Study of Comets 2P/Encke, 67P/Churyumov-Gerasimenko, and C/2001 HT50 (LINEAR-NEAT)" (2006) by M. S. Kelley, C. Woodward, D. E. Harker, D. H. Wooden, R. D. Gehrz, H. Campins, et al. *Astrophysical J.*, vol. 651, 1256-1271.
42. "Nuclear Spectra of Comet 162P/Siding Spring (2004 TU12)" by H. Campins, J. Ziffer, J. Licandro, N. Pinilla-Alonso, Y. Fernández, J. de León, T. Mothé-Diniz, and R. P. Binzel (2006) *Astronomical J.*, vol. 132, 1346-1353.
43. "Comet 162P/Siding Spring: A Surprisingly Large Nucleus" by Y. Fernández, H. Campins, et al. (2006) *Astronomical J.* vol. 132, 1354- 1360.
44. "Origin of Water in the Terrestrial Planets" by M. J. Drake and H. Campins (2006) In *Asteroids, Comets and Meteorites*, Ed. D. Lazzaro et al. Cambridge University Press. pp. 381-394.
45. "R- and J-band Photometry of Comets 2P/Encke and 9P/Tempel 1" by C. W. Hergenrother, B. E. A. Mueller, H. Campins, N. H. Samarasinha and D. W. McCarthy, Jr. (2006) *Icarus*, Vol. 181, 156-161.
46. "Near-infrared Spectra of Two Asteroids with Low Tisserand Invariant" by J. Ziffer, H. Campins, J. Licandro, Y. Fernandez, and S. Bus, (2005) *Earth, Moon and Planets*, vol. 97, 203-212.
47. "Deep Impact: Observations from a Worldwide Earth-Based Campaign" by Meech, K. J.; Ageorges, N.; A'Hearn, M. F.; Arpigny, C.; Ates, A.; Aycock, J.; Bagnulo, S.; Bailey, J.; Barber, R.; Barrera, L.; Barrena, R.; Bauer, J. M.; Belton, M. J. S.; Bensch, F.; Bhattacharya, B.; Biver, N.; Blake, G.; Bockelée-Morvan, D.; Boehnhardt, H.; Bonev, B. P.; Bonev, T.; Buie, M. W.; Burton, M. G.; Butner, H. M.; Cabanac, R.; Campbell, R.; Campins, H. et al. (2005) *Science*, vol. 310, 265-267.
48. "Evaluating Comets as a Source of Earth's Water" H. Campins, T.D. Swindle and D.A. Kring (2004). In *Origins, Evolution and Biodiversity of Microbial Life in the Universe*. Ed. J. Seckbach, pp. 569-591.
49. "Do Comets have Chondrules and CAIs?" (2004) by T. D. Swindle and H. Campins, *Meteoritics and Planetary Sci.* vol. 39, 1733-1740.
50. "Simultaneous visible and near-infrared time resolved observations of the outer solar system object (29981) 1999 TD10" (2003) B.E A. Mueller C. W. Hergenrother, N. H. Samarasinha, H. Campins, and D.W. McCarthy, Jr. (2004). *Icarus*, volume 171, p. 506-515.
51. "The Morphology and Surface Processes of Comet 19P/Borrelly" by D. T. Britt, Boice D. C., Buratti B. J., Campins, H., Nelson R. M., Oberst J., Sandel B. R., Soderblom L. A. , Stern S. A., and Thomas N. (2004). *Icarus*, volume 167, p. 45-53.
52. "Near-infrared spectroscopy of the nucleus of comet 124P/Mrkos" Licandro, J.; Campins, H.; Hergenrother, C.; Lara, L. M (2003) *Astronomy and Astrophys.* v.398, p.L45-L48.
53. "Observational Constraints on Surface Characteristics of Comet Nuclei" H. Campins and Y. Fernandez (2002) *Earth Moon and Planets* v. 89, 117-134.
54. "Evidence for Chemical Heterogeneity in the Nucleus of Comet Hale-Bopp" S.M. Lederer and H. Campins. *Earth Moon and Planets* (2002) v. 90, p. 381-389.
55. "The Surface of Cometary Nuclei and Related Minor Icy Bodies" Licandro, Javier; Guerra, Juan C.; Campins, Humberto; Di Martino, Mario; Lara, Luisa M.; Gil-Hutton, Ricardo; Tozzi, Gian P. (2002) *Earth, Moon, and Planets*, v. 90, p. 495-496.
56. "Broadband Infrared Photometry of Comet Hale-Bopp with ISOPHOT" E. Gruen, M.S. Hanner, T. Mueller, H. Boehnhardt, T.Y. Brooke, H. Campins, et. al. (2001). *Astronomy and Astrophysics*, v.377, p.1098-1118.

57. "Comets with the LBT" H. Campins, S. M. Larson, H.A. Weaver, and J.C. Brandt. (2001). In *Science with the Large Binocular Telescope (LBT)*, ed. T. Herbst. 151-155.
58. "The Chemical Composition of Comets" H. Campins. (2000). In *Astrobiology*, eds. J. Chela-Flores et al. 163-176.
59. "Compositional Variation on the Surface of Centaur 8405 Asbolus" S. D. Kern, McCarthy, D. W., Buie, M. W., Brown, R. H., Campins, H., and Rieke, M., (2000). *Astrophysical Journal Letters*, 542, L155-L159.
60. "Gas Jets in Comet Hale-Bopp (1995 O1)" S.M. Lederer, H. Campins, D. J. Osip and D. G. Schleicher. (1999). *Earth, Moon and Planets*, 78, 131-136.
61. "ISOPHOT Observations of Comet Hale-Bopp, First results. (1999). S. Peschke, E. Gruen, H. Boenhardt, H. Campins, et al. *Earth, Moon and Planets*, 78, 299-304.
62. "Expected Characteristics of Cometary Meteorites" H. Campins and T. Swindle. (1998). *Meteoritics and Planetary Science*, vol. 33, 1201-1211.
63. "Comets Hale-Bopp and Hyakutake: records of presolar chemistry and more" H. Campins. (1998). In *Solar System Formation and Evolution*, eds. D Lazzaro et al.117-133.
64. "Escapees from the Kuiper Belt: The Centaurs" S.A. Stern and H. Campins. (1996). *Nature* 382, 507-510.
65. "A Search for Vulcanoids", H. Campins, D. Davis, M. Magee, and S. Weidenschilling. (1996). In "Completing the Inventory of the Solar System", ed. T. Rettig. 85-96.
66. "High Ecliptic Latitude Asteroid and Comet Surveying with the Catalina Schmidt", T. Spahr, C. Hergenrother, S. Larson, and H. Campins. In " Completing the Inventory of the Solar System", ed. T. Rettig. (1996), 115-122.
67. "Meteorites from Comets? Recent Observational Developments," H. Campins, in *Phys. Chem. & Dynamics of Interplanetary Dust*, *Astron. Soc. Pac. CP*, 104, (1996), 395-398.
68. "Properties of the Aerosol Debris Generated by the Impact of Fragment H of Comet P/Shoemaker-Levy 9 on Jupiter," F. Moreno, O. Munoz, A. Molina, J.J. Lopez-Moreno, J.L. Ortiz, J. Rodrigues, A. Lopez-Jimenez, F. Girela, S.M. Larson and H. Campins, *Geophys. Res. Lett.* 22, No. 12, (1995), 1609-1612.
69. "The Rotation State of 4015 Wilson-Harrington: Revisiting Origins of Near-Earth Asteroids," D.J. Osip, H. Campins and D.G. Schleicher, *Icarus* 114, (1995), 423-426.
70. "The Radius and Albedo of Comet-Asteroid Transition Object 4015 Wilson-Harrington," H. Campins, D.J. Osip, G.H. Rieke, and M.J. Rieke, *Plan. & Space Sci.* 43, (1995), 733-736.
71. "The Color Temperature of (2060) Chiron: A Warm and Small Nucleus," H. Campins, C.M. Telesco, D.J. Osip, G.H. Rieke, M.J. Rieke, and B. Schulz *Astron. J.* 108, (1994), 2318-2322.
72. "A Multifrequency Comparison of Cepheids and Non-variable Supergiants" N.R. Evans, J.H. Jiang, C.W. McAlary and H. Campins, *Astron. J.* 106, (1993), 726-733.
73. "Short - Period Comets," P.R. Weissman and H. Campins, in *Near Earth Resources* , J. Lewis, M.S. Matthews, and M.L. Guerreri, eds., (Univ. AZ Press, Tucson), (1993), 569-617.
74. "Detection of the 2165 cm⁻¹ (4.619 μm) XCN Band in the Spectrum of L1551 IRS5," S.C. Tegler, D.A. Weintraub, L.J. Allamandola, S.A. Sandford, H.Campins, and T.W. Rettig), *Astrophys. J.* (1993).
75. "Near-Infrared, Polarimetric Imaging of The Disk and Outflow Around The Young Stellar Object GSS 30 = El 21," D.A. Weintraub, J. Kastner, Laura L. Griffith and H. Campins, *Astron. J.* 105, (1993), 275.

76. "High Resolution Images of P/Tempel 1 and P/Tempel 2 Constructed from IRAS Survey Data," R.G. Walker, H. Campins and M. Schlapfer, in *Asteroids Comets and Meteors 1991*. eds. A.W. Harris and E. Bowell, (Lunar and Planetary Institute, Houston, TX, 1992), 617-620.
77. "Simultaneous Visible and Near Infrared Spectrophotometry of Comet Austin (1989)," S.C. Tegler, H. Campins, S.M. Larson, M. Kleine, D.Kelly and M. Rieke, *Astrophys. J.* 396, (1992), 711-716.
78. "Comet Halley: Spatial and Temporal Variability of the Silicate Emission Feature" E.V. Ryan and H. Campins, *Astron. J.* 101, (1991),695-705.
79. "Infrared Mapping of M82: A Starburst in an Edge-on Barred Galaxy," C.M. Telesco, H. Campins, M. Joy, K. Dietz, and R. Decher, *Astrophys. J.*369, (1991), 135-146.
80. "An Albedo Map of Comet Brorsen-Metcalf," S.E. Ridgeway, D. Jewitt, H.Campins, J. Luu, M. Joy, C. Sisk and C.M. Telesco, in *Proc. of Astrophysics with Infrared Arrays (1990)*, 329.
81. "Groundbased Thermal IR Images of Comet Tempel 2," H. Campins, R. Decher, C.M. Telesco and D.J. Lien, *Icarus* 86, (1990), 220-227.
82. "IRAS Images of Comet Tempel 2," H. Campins, R.G. Walker, and D.J. Lien, *Icarus* 86, (1990), 228-235.
83. "5 to 13 m Airborne Observations of Comet Wilson 1986I," (D.K. Lynch, R.W. Russell, H. Campins, F.C. Witteborn, J.M. Bregman, D.M. Rank and M.C. Cohen, *Icarus* 82, (1989), 379-388.
84. "The Nucleus of Comet P/Tempel 2," M.F. A'Hearn, H. Campins, D.G. Schleicher and R.L. Millis, *Astrophys. J.* 347, (1989), 1155-1166.
85. "Surface Discharges on Natural Dielectrics in the Solar System," H. Campins and E.P. Krider, *Science* 245, (1989), 622-624.
86. "Infrared Imaging of the Coma of Comet Wilson," H. Campins, D.J. Lien, R. Decher, C.M. Telesco and K.S. Clifton, *Icarus* 80, (1989) 289-302.
87. "The Identification of Crystalline Olivine in Cometary Silicates," H. Campins and E.V. Ryan, *Astrophys. J.* 341, (1989), 1059-1066.
88. "An Infrared Color Gradient in the Inner Coma of Comet Halley," H. Campins, M.J. Rieke and G.H. Rieke, *Icarus* 78, (1989), 54-62.
89. "Infrared Observations of the Dust Coma of Comets Halley and Wilson," H. Campins and A. Tokunaga, in *NASA Conference Publication of Infrared Observations of Comets Halley & Wilson and Properties of the Grains*, NASA CP-3004, (1988), 1-21.
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