

## REFERENCES

- A'Hearn, M. F., 1991. Photometry and polarimetry network. In *The Comet Halley Archive Summary Volume* (Z. Sekanina and L. Fry, Eds.), pp. 193-235. Jet Propulsion Laboratory, Pasadena.
- A'Hearn, M. F., H. Campins, D. G. Schleicher, and R. L. Millis 1989. The nucleus of comet P/Tempel 2. *Astroph. J.* **347**, 1155-1166.
- A'Hearn, M. F., R. L. Millis, D. G. Schleicher, D. J. Osip, and P. V. Birch 1995. The ensemble properties of comets: Results from narrow band photometry of 85 comets, 1976-1992. *Icarus* **118**, 223-270.
- A'Hearn, M. F., D. G. Schleicher, P. D. Feldman, R. L. Millis, and D. T. Thompson 1984. Comet Bowell 1980b. *A. J.* **89**, 579-591.
- Allen, C. W. 1973. *Astrophysical Quantities*, 3d ed., Athlone Press, London.
- Altenhoff, W. J., and 20 colleagues 1999. Coordinated radio continuum observations of comets Hyakutake and Hale-Bopp from 22 to 860 GHz. *Astron. & Astrophys.* **348**, 1020-1034.
- Altenhoff, W. J., W. K. Batrla, W. K. Huchtmeier, J. Schmidt, P. Stumpff, and M. Walmsley 1983. Radio observations of comet 1983d. *Astron. & Astrophys.* **125**, L19-L22.
- Barker, E. S., A. L. Cochran, and P. M. Rybski 1981. Observations of faint comets at McDonald Observatory: 1978-1980. In *Modern Observational Techniques for Comets* (J. Brandt, J. M. Greenberg, B. Donn, and J. Rahe, Eds.), pp. 150-155. NASA Jet Propulsion Laboratory, Pasadena.
- Bell, J. F., B. R. Hawke, and R. H. Brown 1988. Composition and size of Apollo asteroid 1984 KB. *Icarus* **73**, 482-486.
- Belton, M. J. S., 1991. Characterization of the rotation of cometary nuclei. In *Comets in the Post-Halley Era* (R. L. Newburn, Jr., M. Neugebauer, and J. Rahe, Eds.), pp. 691-721. Kluwer Academic Publishers, Boston.
- Bessel, M. S., 1979. *UBVRI* photometry II: the Cousins *VRI* system, its temperature and absolute flux calibration, and relevance for two-dimensional photometry. *Publ. Astron. Soc. Pacific* **91**, 589-607.
- Bessel, M. S., 1990. *UBVRI* passbands. *Publ. Astron. Soc. Pacific* **102**, 1181-1199.
- Biermann, L., 1951. Kometschwerfe und solare Korpuskularstrahlung. *Z. Astrophys.* **29**, 274-286.
- Biver, N., and 22 colleagues 1999. Long term evolution of the outgassing of comet Hale-Bopp from radio observations. *Earth Moon & Plan.*, accepted.
- Bobrovnikoff, N. T., 1931. Halley's comet in its apparition of 1909-1911. *Publ. of Lick Obs.* **17**, 309-482.
- Boss, A. P., 1998. Evolution of the solar nebula. IV. Giant gaseous protoplanet formation. *Astrophys. J.* **503**, 923-937.
- Brown, R. H., 1985. Ellipsoidal geometry in asteroid thermal models – the standard radiometric model. *Icarus* **64**, 53-63.
- Bus, S. J., and 20 colleagues 1996. Stellar occultation by 2060 Chiron. *Icarus* **123**, 478-490.
- Campbell, D. B., J. K. Harmon, and I. I. Shapiro 1989. Radar observations of comet Halley, *Astrophys. J.* **338**, 1049-1105.
- Campins, H., 1988. The anomalous dust production in periodic comet Encke. *Icarus* **73**, 508-515.
- Campins, H., M. F. A'Hearn, and L. A. McFadden 1987. The bare nucleus of comet Neujmin 1. *Astroph. J.* **316**, 847-857.
- Campins, H., D. J. Osip, G. H. Rieke, and M. J. Rieke 1995. Estimates of the radius and albedo of comet-asteroid transition object 4015 Wilson-Harrington based on infrared observations. *Plan. & Sp. Sci.* **43**, 733-736.
- Campins, H., and D. G. Schleicher 1995. Comet d'Arrest: a small and rapidly rotating nucleus? [abstract]. *Bull. Amer. Astron. Soc.* **27**, 1113.
- Campins, H., C. M. Telesco, D. J. Osip, G. H. Rieke, M. J. Rieke, and B. Schulz 1994. The color temperature of (2060) Chiron: A warm and small nucleus. *Astron. J.* **108**, 2318-2322.
- Chambers, G. F., 1909. *The Story of the Comets*, Clarendon Press, London.

- Combes, M., J. Lecacheux, Th. Encrenaz, B. Sicardy, Y. Zeau, and D. Malaise 1983. On stellar occultations by comets. *Icarus* **56**, 229-232.
- Cruikshank, D. P., and R. H. Brown. The nucleus of comet P/Schwassmann-Wachmann 1. *Icarus* **56**, 377-380.
- Cruikshank, D. P., and T. J. Jones. The diameter and albedo of asteroid 1976 AA. *Icarus* **31**, 427-429.
- Danby, J. M. A., 1962. *Fundamentals of Celestial Mechanics*. The MacMillian Co., New York.
- Davies, J., J. Spencer, M. Sykes, D. Tholen, and S. Green 1993. (5145) Pholus. *Int'l Astron. Union Circ.* **5698**.
- Davis, D. R., C. R. Chapman, S. J. Weidenschilling, and R. Greenberg 1985. Collision history of asteroids: evidence from Vesta and the Hirayama families. *Icarus* **62**, 30-53.
- de Pater, I., P. Palmer, D. L. Mitchell, S. J. Ostro, D. K. Yeomans, and L. E. Snyder 1994. Radar aperture synthesis observations of asteroids. *Icarus* **111**, 489-502.
- de Pater, I., C. M. Wade, H. L. F. Houpis, and P. Palmer 1985. The nondetection of continuum radiation from comet IRAS-Araki-Alcock (1983d) at 2- to 6-cm wavelengths and its implication on the icy-grain halo theory. *Icarus* **62**, 349-359.
- Divine, N. 1981. Numerical models for Halley dust environments. In *The Comet Halley Dust & Gas Environment* (B. Battrick and E. Swallow, Eds.), pp. 25-30. European Space Agency Scientific and Technical Publications Branch, Noordwijk, The Netherlands.
- Divine, N. and 10 colleagues 1986. The Comet Halley dust and gas environment. *Sp. Sci. Rev.* **43**, 1-104.
- Dones, L., H. F. Levison, and M. Duncan 1996. On the dynamical lifetimes of planet-crossing objects. In *Completing the Inventory of the Solar System* (T. W. Rettig, J. M. Hahn, Eds.), pp.233-244. Astronomical Society of the Pacific, San Francisco.
- Donn, B. D., 1990. The formation and structure of fluffy cometary nuclei from random accumulation of grains. *Astron. & Astrophys.* **235**, 441-446.
- Donn, B., 1991. The accumulation and structure of comets. In *Comets in the Post-Halley Era* (R. L. Newburn, Jr., M. Neugebauer, and J. Rahe, Eds.), pp. 335-339. Kluwer Academic Publishers, Boston.
- Duncan, M., T. Quinn, and S. Tremaine 1987. The formation and extent of the solar system comet cloud. *Astron. J.* **94**, 1330-1338.
- Dworetsky, M. M., 1983. A period-finding method for sparse randomly spaced observations or "How long is a piece of string?" *Mon. Not. Royal Astron. Soc.* **203**, 917-924.
- Edgeworth, K. E. 1949. The origin and evolution of the Solar System. *Mon. Not. Royal Astron. Soc.* **109**, 600-609.
- Farinella, P., and D. R. Davis 1996. Short-period comets: primordial bodies or collisional fragments?. *Science* **273**, 938-941.
- Farnham, T. L., D. G. Schleicher, and M. F. A'Hearn 1999. The HB narrowband comet filters: standard stars and calibrations. *Icarus*, submitted.
- Fernández, J. A., 1980. On the existence of a comet belt beyond Neptune. *Mon. Not. Roy. Astron. Soc.* **192**, 481-491.
- Fernández, Y. R., and 11 colleagues 1999a. Survey of the physical properties of cometary nuclei: Recent progress. In *Cometary Nuclei in Space and Time, A.S.P. Conference Series* (M. F. A'Hearn, Ed.), accepted. Astronomical Society of the Pacific, San Francisco.
- Fernández, Y. R., and 14 colleagues 1999b. The inner coma and nucleus of comet Hale-Bopp: results from a stellar occultation. *Icarus* **140**, 205-220.
- Fernández, Y. R., C. M. Lisse, H. U. Käufl, S. B. Peschke, H. A. Weaver, M. F. A'Hearn, P. L. Lamy, T. A. Livengood, and T. Kostiuk 1999c. Physical properties of the nucleus of comet 2P/Encke. *Icarus*, submitted.
- Fernández, Y. R., A. Kundu, C. M. Lisse, and M. F. A'Hearn 1997a. X-Band VLA observations of comet Hyakutake (C/1996 B2) and implications for nuclear properties. *Planetary & Space Science* **45**, 735-739.
- Fernández, Y. R., L. A. McFadden, C. M. Lisse, E. F. Helin, and A. B. Chamberlin 1997b. Analysis of POSS images of comet-asteroid transition object 107P/1949 W1 (Wilson-Harrington).

*Icarus* **128**, 114-126.

- Fernie, J. D. 1983. Relationships between the Johnson and Kron-Cousins VRI photometric systems. *Publ. Astron. Soc. Pacific* **95**, 782-785.
- Finlay, W. H., and W. L. Elkin 1882. *Mon. Not. Roy. Astron. Soc.* **43**.
- Fomenkova, M. N. B. Jones, R. Piña, R. Puetter, J. Sarmecanic, R. Gehrz, and T. Jones 1995. Mid-infrared observations of the nucleus and dust of comet P/Swift-Tuttle. *Astron. J.* **110**, 1866-1874.
- Gabriel, C., J. Acosta-Pulido, I. Heinrichsen, H. Morris, and W. M. Tai 1997. The ISOPHOT interactive analysis PIA, a calibration and scientific analysis tool. In *Astronomical Data Analysis Software and Systems VI: A.S.P. Conference Series Vol. 125* (G. Hunt and H. E. Payne, Eds.), pp. 108-111. Astronomical Society of the Pacific, San Francisco.
- Garradd, G. J. 1997. Comet 2P/Encke. *Int'l Astron. Union Circ.* **6717**.
- Gehrz, R. D., E. P. Ney, J. Piscitelli, E. Rosenthal, and A. T. Tokunaga 1989. Infrared photometry and spectroscopy of comet P/Encke 1987. *Icarus* **80**, 280-288.
- Gilmore, A. C., and P. M. Kilmartin 1978. Periodic comet Encke. *Int'l Astron. Union Circ.* **3210**.
- Goldstein, R. M., R. F. Jurgens, and Z. Sekanina 1984. A radar study of comet IRAS-Araki-Alcock 1983d. *Astron. J.* **89**, 1745-1754.
- Gombosi, T. I., T. E. Cravens, and A. F. Nagy 1985. Time-dependent dusty gasdynamical flow near cometary nuclei. *Astrophys. J.* **293**, 328-341.
- Gombosi, T. I. and H. L. F. Houpis 1986. An icy-glue model of cometary nuclei. *Nature* **324**, 43-44.
- Gombosi, T. I., A. F. Nagy, and T. E. Cravens 1986. Dust and neutral gas modeling of the inner atmosphere of comets. *Rev. Geophys.* **24**, 667-700.
- Gombosi, T. I., K. Szegő, B. E. Gribov, R. Z. Sagdeev, V. D. Shapiro, V. I. Shevchenko, and T. E. Cravens 1983. Gas dynamic calculations of dust terminal velocities with realistic dust size distributions. In *Cometary Exploration* (T. I. Gombosi, Ed.), vol. 2, pp. 99-111. Central Research Institute for Physics, Hungarian Academy of Sciences, Budapest.
- Gradie, J. C., C. R. Chapman, and E. F. Tedesco 1989. Distribution of taxonomic classes and the compositional structure of the asteroid belt. In *Asteroids II* (R. P. Binzel, T. Gehrels, M. S. Matthews, Eds.), pp. 316-335. Univ. of Arizona Press, Tucson.
- Green, D. W. E. 1998. Comet 55P/Tempel-Tuttle. *Int'l Astron. Union Circ* **6816**.
- Green, S. F., A. J. Meadows, and J. K. Davies 1985. Infrared observations of the extinct cometary candidate minor planet (3200) 1983 TB. *Mon. Not. Roy. Astron. Soc.* **214**, 29p-36p.
- Greenberg, R., and M. C. Nolan 1989. Delivery of asteroids and meteorites to the inner Solar System. In *Asteroids II* (R. P. Binzel, T. Gehrels, M. S. Matthews, Eds.), pp. 778-804. Univ. of Arizona Press, Tucson.
- Hainaut, O. R., K. J. Meech, H. Boehnhardt, and R. M. West 1998. Early recovery of comet 55P/Tempel-Tuttle. *Astron. & Astrophys.* **333**, 746-752.
- Hanner, M. S., D. K. Aitken, R. Knacke, S. McCorkle, P. F. Roche, A. T. Tokunaga 1985. Infrared spectrophotometry of comet IRAS-Araki-Alcock (1983d) - A bare nucleus revealed? *Icarus* **62**, 97-109.
- Hanner, M. S., R. H. Giese, K. Weiss, and R. Zerull 1981. On the definition of albedo and application to irregular particles. *Astron. & Astrophys.* **104**, 42-46.
- Hanner, M. S., D. K. Lynch, R. W. Russell, J. A. Hackwell, R. Kellogg, D. Blaney 1996. Mid-infrared spectra of comets P/Borrelly, P/Faye, and P/Schaumasse. *Icarus* **124**, 344-351.
- Hanner, M. S., R. L. Newburn, H. Spinrad, and G. J. Veeder 1987. Comet Sugano-Saigusa-Fujikawa (1983V) - a small, puzzling comet. *Astron. J.* **94**, 1081-1087.
- Harmon, J. K., and 15 colleagues 1997. Radar detection of the nucleus and coma of comet Hyakutake (C/1996 B2). *Science* **278**, 1921-1924.
- Harmon, J. K., D. B. Campbell, A. A. Hine, I. I. Shapiro, and B. G. Marsden 1989. Radar observations of comet IRAS-Araki-Alcock. *Astrophys. J.* **338**, 1071-1093.
- Harris, A. W. 1998. A thermal model for near-Earth asteroids. *Icarus* **131**, 291-301.
- Harris, A. W., J. K. Davies, and S. F. Green 1998. Thermal infrared spectrophotometry of the near-Earth asteroids 2100 Ra-Shalom and 1991 EE. *Icarus* **135**, 441-450.

- Helin, E., E. Ney, and B. Hatfield 1980. Periodic comet Encke. *Int'l Astron. Union Circ.* **3501**.
- Hellmich, R., 1981. The influence of the radiation transfer in cometary dust halos on the production rates of gas and dust. *Astron. & Astrophys.* **93**, 341-346.
- Henyey, L. G., and J. L. Greenstein 1941. Diffuse radiation in the galaxy. *Astrophys. J.* **93**, 70-83.
- Hoban, S., and S. Baum 1987. A VLA search for 2-cm continuum radiation from comet Halley. *Icarus* **70**, 264-268.
- Hobbs, R. W., J. C. Brandt, S. P. Maran, W. J. Webster, Jr., and K. S. Krishna Swamy 1975. Microwave continuum radiation from comet Kohoutek 1973f: emission from the icy-grain halo? *Astrophys. J.* **201**, 749-755.
- Hobbs, R. W., S. P. Maran, and J. C. Brandt 1977. Microwave continuum radiation from comet West 1975n. *Astrophys. J.* **218**, 573-578.
- Högbom, J. A., 1974. Aperture synthesis with a non-regular distribution of interferometer baselines. *Astron. & Astrophys. Suppl.* **15**, 417-426.
- Hudson, R. S., and S. J. Ostro 1995. Shape and non-principal axis spin state of asteroid 4179 Toutatis. *Science* **270**, 84-86.
- Jacoby, G. H., D. A. Hunter, and C. A. Christian 1984. A library of stellar spectra. *Astrophys. J. Suppl. Ser.* **56**, 257-281.
- Jewitt, D., 1991. Cometary photometry. In *Comets in the Post-Halley Era* (R. L. Newburn, Jr., M. Neugebauer, and J. Rahe, Eds.), pp. 19-65. Kluwer Academic Publishers, Boston.
- Jewitt, D., and P. Kalas 1998. Thermal observations of Centaur 1997 CU<sub>26</sub>. *Astroph. J.* **499**, L103-L106.
- Jewitt, D., and K. Meech 1987 [JM87]. CCD photometry of comet P/Encke. *Astron. J.* **93**, 1542-1548.
- Jewitt, D. C., and K. J. Meech 1988. Optical properties of cometary nuclei and a preliminary comparison with asteroids. *Astroph. J.* **328**, 974-986.
- Jorda, L., et al. 1999. The rotation period of comet Hale-Bopp from observations of the dust jets at Pic du Midi Observatory. *Earth, Moon, & Planets*, accepted.
- Jorda, L., P. L. Lamy, I. Toth, and M. F. A'Hearn 1999. Properties of the nucleus of short-period comets from ISO observations [abstract]. In *Abstracts: Asteroids, Comets, Meteors, Cornell University, July 26-30, 1999*, p. 75. Cornell University, Ithaca, NY.
- Kamoun, P. G., D. B. Campbell, S. J. Ostro, G. H. Pettengill, and I. I. Shapiro 1982. Comet Encke: radar detection of nucleus. *Science* **216**, 293-295.
- Käufl, H. U. 1997. *TIMMI filter wheel configuration*, World Wide Web URL  
<http://www.eso.org/lasilla/Telescopes/360cat/timmi/timmi-filters.html>, 26 February 1997.
- Käufl, H. U., R. Jouan, P. O. Lagage, P. Masse, P. Mestreau, and A. Tarrius 1994. TIMMI, ESO's new 10  $\mu$ m camera/spectrometer. *Infrared Phys. Technol.* **35**, 203-210.
- Kazarovets, A. V., N. N. Samus, O. V. Durlevich, M. S. Frolov, S. V. Antipin, N. N. Kireeva, and E. N. Pastukhova 1999. The 74th special name-list of variable stars. *Info. Bull. on Var. Stars* **4659**.
- Keller, H. U., 1990. The nucleus. In *Physics and Chemistry of Comets* (W. F. Huebner, Ed.), pp. 13-68. Springer-Verlag, Berlin.
- Keller, H. U., and 17 colleagues 1986. First Halley multicolour camera imaging results from Giotto. *Nature* **321**, 320-326.
- Keller, H. U., and 21 colleagues 1987. Comet P/Halley's nucleus and its activity. *Astron. & Astrophys.* **187**, 807-823.
- Kharitonov, A. V., V. M. Tereshchenko, and L. N. Knyazeva 1988. *Spectrophotometric catalogue of stars*, Izdatel'stvo Nauka Kazakhskoi SSR, Alma-Ata, Kazakh SSR.
- Klaas, U., H. Krüger, I. Heinrichson, A. Heske, and R. Laureijs 1994. *ISOPHOT observer's manual*, World Wide Web URL  
[http://isowww.estec.esa.nl/manuals/iso\\_pht/om311.html](http://isowww.estec.esa.nl/manuals/iso_pht/om311.html), 9 May 1994.
- Kuiper, G. P., 1951. Origin of the solar system. In *Astrophysics: A Topical Symposium* (J. A. Hynek, Ed.), pp. 357-424. McGraw-Hill, New York.

- Labs, D., H. Neckel, P. C. Simon, and G. Thuiller 1987. Ultraviolet solar irradiance measurement from 200 to 358 nm during Spacelab 1 mission. *Sol. Phys.* **107**, 203-219.
- Lamy, P., 1998. Comet 55P/Tempel-Tuttle. *Int'l Astron. Union Circ.* **6851**.
- Lamy, P. L., and I. Toth 1995. Direct detection of a cometary nucleus with the Hubble Space Telescope. *Astron. & Astrophys.* **293**, L43-L45.
- Lamy, P. L., I. Toth, M. F. A'Hearn, H. A. Weaver 1997. The nucleus of comet 45P/Honda-Mrkos-Pajdušakova [abstract]. *Bull. Amer. Astron. Soc.* **29**, 1029.
- Lamy, P. L., I. Toth, L. Jorda, H. A. Weaver, and M. A'Hearn 1998a. The nucleus and inner coma of comet 46P/Wirtanen. *Astron. & Astrophys.* **335**, L25-L29.
- Lamy, P. L., I. Toth, H. A. Weaver 1998b. Hubble Space Telescope observations of the nucleus and inner coma of comet 19P/1904 Y2 (Borrelly). *Astron. & Astrophys.* **337**, 945-954.
- Larson, S. M. and M. F. A'Hearn 1984. Comet Bowell (1980b) - measurement of the optical thickness of the coma and particle albedo from a stellar occultation. *Icarus* **58**, 446-450.
- Laureijs, R. J., U. Klaas, P. J. Richards, and B. Schulz 1998. *ISOPHOT data users manual*, World Wide Web URL  
[http://isowww.estec.esa.nl/manuals/pht\\_idum4/](http://isowww.estec.esa.nl/manuals/pht_idum4/),  
October 1998.
- Lebofsky, L. A., M. J. Lebofsky, and G. H. Rieke 1979. Radiometry and surface properties of Apollo, Amor, and Aten asteroids. *Astron. J.* **84**, 885-888.
- Lebofsky, L. A. and J. R. Spencer 1989. Radiometry and thermal modeling of asteroids. In *Asteroids II* (R. P. Binzel, T. Gehrels, M. S. Matthews, Eds.), pp. 128-147. Univ. of Arizona Press, Tucson.
- Lebofsky, L. A., M. V. Sykes, E. F. Tedesco, G. J. Veeder, D. L. Matson, R. H. Brown, J. C. Gradie, M. A. Feierberg, R. J. Rudy 1986. A refined "standard" thermal model for asteroids based on observations of 1 Ceres and 2 Pallas. *Icarus* **68**, 239-251.
- Lebofsky, L. A., G. J. Veeder, M. J. Lebofsky, and D. L. Matson 1978. Visual and radiometric photometry of 1580 Betulia. *Icarus* **35**, 336-343.
- Lebofsky, L. A., G. J. Veeder, G. H. Rieke, M. J. Lebofsky, D. L. Matson, C. Kowal, C. G. Wynn-Williams, and E. E. Becklin 1981. The albedo and diameter of 1862 Apollo. *Icarus* **48**, 335-338.
- Lecacheux, J., L. Jorda, A. Enzian, J. Klinger, F. Colas, E. Frappa, and P. Laques 1996. Comet C/1996 B2 (Hyakutake). *Int'l Astron. Union Circ.* **6354**.
- Lecacheux, J., W. Thuillot, Th. Encrenaz, P. Laques, D. Rouan, and R. Despiau 1984. Stellar occultations by two comets: IRAS-Araki-Alcock (1983d) and P/IRAS (1983j). *Icarus* **60**, 386-390.
- Lemke, D., and 48 colleagues. ISOPHOT – capabilities and performance. *Astron. & Astrophys.* **315**, L64-L70.
- Levison, H., 1996. Comet taxonomy. In *Completing the Inventory of the Solar System* (T. Rettig and J. M. Hahn, Eds.), pp. 173-191. Astronomical Society of the Pacific, San Francisco.
- Levison, H. F., and M. J. Duncan 1997. From the Kuiper Belt to Jupiter family comets: the spatial distribution of ecliptic comets. *Icarus* **127**, 13-32.
- Licandro, J., et al. 1999. The spin axis of comet 1995 O1 (Hale-Bopp). *Earth, Moon, & Planets*, accepted.
- Lien, D. J., 1998. Asteroid debris trails: evidence for recent collisions in the asteroid belt [abstract]. *Bull. Amer. Astron. Soc.* **30**, 1207.
- Lisse, C. M., and 11 colleagues 1996. Discovery of X-ray and EUV emission from comet Hyakutake C/1996 B2. *Science* **274**, 205-209.
- Lisse, C. M., and 14 colleagues 1999a. Infrared observations of the dust emitted by comet Hale-Bopp. *Earth, Moon & Plan.*, accepted.
- Lisse, C. M., M. F. A'Hearn, Y. R. Fernández, E. Grün, H. U. Käufl, T. Kostiuk, D. J. Lien, T. A. Livengood, D. J. Osip, and S. B. Peschke 2000. ISOPHOT measurements of dust emitted from periodic comets 126P/IRAS (1996) and 2P/Encke (1997). *Icarus*, submitted.
- Lisse, C. M., M. F. A'Hearn, M. G. Hauser, T. Kelsall, D. J. Lien, S. H. Moseley, W. T. Reach, and R. F. Silverberg 1998. Infrared observations of comets by COBE. *Astroph. J.* **496**, 971-991.

- Lisse, C. M., Y. R. Fernández, A. Kundu, M. F. A'Hearn, A. Dayal, L. K. Deutsch, G. G. Fazio, J. L. Hora, and W. F. Hoffmann 1999b. The nucleus of comet C/1996 B2 (Hyakutake). *Icarus* **140**, 189-204.
- Lumme, K., and E. Bowell 1981. Radiative transfer in the surfaces of atmosphereless bodies. II. Interpretation of phase curves. *Astron. J.* **86**, 1705-1721.
- Lumme, K., E. Bowell, and A. W. Harris 1984. An empirical phase relation for atmosphereless bodies [abstract]. *Bull. Amer. Astron. Soc.* **16**, 684.
- Luu, J., and D. Jewitt 1990 [LJ90]. The nucleus of comet P/Encke. *Icarus* **86**, 69-81.
- Lyttleton, R. A., 1953. *The Comets and Their Origin*. University Press, Cambridge.
- Lyttleton, R. A., 1963. Introduction. In *The Nature of Comets* (N. B. Richter; A. Beer, trans.), pp. xvii-xxxviii. Methuen & Co. Ltd., London.
- Marconi, M. L. and D. A. Mendis 1983. The atmosphere of a dirty-clathrate cometary nucleus: a two-phase, multifluid model. *Astrophys. J.* **273**, 381-396.
- Marconi, M. L., and D. A. Mendis 1984. The effects of the diffuse radiation fields due to multiple scattering and thermal reradiation by dust on the dynamics and thermodynamics of a dusty cometary atmosphere. *Astrophys. J.* **287**, 445-454.
- Marsden, B. G., 1971. Comets in 1970. *Quart. J. Roy. Astron. Soc.* **12**, 244-273.
- Marsden, B. G., 1972. Comets in 1971. *Quart. J. Roy. Astron. Soc.* **13**, 415-435.
- Marsden, B. G., 1973. Comets in 1972. *Quart. J. Roy. Astron. Soc.* **14**, 389-406.
- Marsden, B. G., 1974. Comets in 1973. *Quart. J. Roy. Astron. Soc.* **15**, 433-460.
- Marsden, B. G., 1985a. Comets in 1980. *Quart. J. Roy. Astron. Soc.* **26**, 156-167.
- Marsden, B. G., 1985b. Comets in 1982. *Quart. J. Roy. Astron. Soc.* **26**, 530-540.
- Marsden, B. G., 1992. (4015) 1979 VA = Comet Wilson-Harrington (1949 III). *Int'l Astron. Union Circ.* **5585**.
- Marsden, B. G., 1996a. Comet C/1996 B2 (Hyakutake). *Int'l Astron. Union Circ.* **6304**.
- Marsden, B. G., 1996b. Comet P/1996 N2 (Else-Pizarro). *Int'l Astron. Union Circ.* **6457**.
- Marsden, B. G., 1997. 1996 TO<sub>66</sub>. *Minor Plan. Elec. Circ.* **1997-M05**.
- Marsden, B. G., and E. Roemer 1978a. Comets in 1974. *Quart. J. Roy. Astron. Soc.* **19**, 38-58.
- Marsden, B. G., and E. Roemer 1978b. Comets in 1975. *Quart. J. Roy. Astron. Soc.* **19**, 59-89.
- Marsden, B. G. and G. V. Williams 1999. *Catalogue of Cometary Orbits*, 13th ed. International Astronomical Union, Cambridge, Mass.
- Matson, D. L. 1972. Ph.D. Thesis, California Institute of Technology.
- McFadden, L. A. 1994. The comet-asteroid transition: recent telescopic observations. In *Asteroids Comets Meteors 1993* (A. Milani, M. Di Martino, A. Cellino, Eds.), pp. 95-120. Kluwer Academic Publ., Dordrecht.
- McFadden, L. A., A. L. Cochran, E. S. Braker, D. P. Cruikshank, and W. K. Hartmann 1993. The enigmatic object 2201 Oljato - Is it an asteroid or an evolved comet? *J. Geophys. Res.* **98**, 3031-3041.
- Meech, K. J., 1991. Physical aging in comets. In *Comets in the Post-Halley Era* (R. L. Newburn, Jr., M. Neugebauer, and J. Rahe, Eds.), pp. 629-669. Kluwer Academic Publishers, Boston.
- Meech, K. J., 1999. Physical properties of comets. In *Asteroids, Comets, Meteors '96: Proceedings of the 10th COSPAR Colloquium* (A.-C. Levasseur-Regourd and M. Fulchignoni, Eds.), in press. Pergamon-Elsevier, Oxford.
- Meech, K. J. and D. C. Jewitt 1987. Observations of comet P/Halley at minimum phase angle. *Astron. & Astrophys.* **187** 585-593.
- Meech, K. J., and R. L. Newburn 1999. Comet 81P/Wild 2, inn preparation.
- Meier, R., T. C. Owen, D. C. Jewitt, H. E. Matthews, M. Senay, N. Biver, D. Bockelée-Morvan, J. Crovisier, and D. Gautier 1998a. Deuterium in comet C/1995 O1 (Hale-Bopp): detection of DCN. *Science* **279**, 1707-1710.
- Meier, R., T.C. Owen, H. E. Matthews, D. C.Jewitt, D. Bockelée-Morvan, N. Biver, J. Crovisier, and D. Gautier 1998b. A determination of the HDO/H<sub>2</sub>O ratio in comet C/1995 O1 (Hale-Bopp). *Science* **279**, 842-844.
- Migliorini, F., P. Michel, A. Morbidelli, D. Nesvorný, and V. Zappalà 1998. Origin of Earth-crossing asteroids: a quantitative simulation. *Science* **281**, 2022-2024.

- Millis, R. L., M. F. A'Hearn, and H. Campins 1988. An investigation of the nucleus and coma of comet P/Arend-Rigaux. *Astroph. J.* **324**, 1194-1209.
- Minter, A. H. and G. Langston 1996. 8.35 and 14.35 GHz continuum observations of comet Hyakutake C/1996 B2. *Astrophys. J. Lett.* **467**, 37-40.
- Monet, D. G., C. C. Dahn, F. J. Vrba, H. C. Harris, J. R. Pier, C. B. Luginbuhl, and H. D. Ables 1992. U.S. Naval Observatory CCD parallaxes of faint stars. I. Program description and first results. *Astron. J.* **103**, 638-665.
- Morrison, D., J. C. Gladie, and G. H. Rieke 1976. Radiometric diameter and albedo of the remarkable asteroid 1976 AA. *Nature* **260**, 691.
- Mottola, S., and 28 colleagues 1997. Physical model of near-Earth asteroid 6489 Golevka (1991 JX) from optical and infrared observations. *Astron. J.* **114**, 1234-1245.
- Mumma, M. J., M. A. DiSanti, N. Dello Russo, M. Fomenkova, K. Magee-Sauer, C. D. Kaminski, and D. X. Xie 1996. Detection of abundant ethane and methane, along with carbon monoxide and water, in Comet C/1996 B2 Hyakutake: evidence for interstellar origin. *Science* **272**, 1310-1314.
- Murchie, S., and 15 colleagues. Imaging results from NEAR's flyby of 433 Eros [abstract]. In *Abstracts: Asteroids, Comets, Meteors, Cornell University, July 26-30, 1999*, p. 13. Cornell University, Ithaca, NY.
- Nakamura, T., and S. Nakano 1996. Comet 1996 B2. *Int'l Astron. Union Circ.* **6299**.
- National Radio Astronomy Observatory, The, 1997. *The AIPS Cookbook*, version 15-APR-1998, NRAO, Charlottesville, Virginia.
- Neckel, H. and D. Labs 1984. The solar radiation between 3300 and 12500 Å. *Sol. Phys.* **90**, 205-258.
- Ney, E. P., 1974. Multiband photometry of comets Kohoutek, Bennett, Bradfield, and Encke. *Icarus* **23**, 551-560.
- Oort, J. H., 1950. The structure of the cloud of comets surrounding the Solar System and a hypothesis concerning its origin. *Bull. Astron. Inst. Neth.* **11**, 91-110.
- Osborn, W. H., M. F. A'Hearn, U. Carsenty, R. L. Millis, D. G. Schleicher, P. V. Birch, H. Moreno, and A. Gutierrez-Moreno 1991. Standard stars for photometry of comets. *Icarus* **88**, 228-245.
- Perley, R. A., and G. B. Taylor 1996. *The VLA calibrator manual*, National Radio Astronomy Observatory, Socorro, New Mexico.
- Perryman, M. A. C., 1997. *The Hipparcos and Tycho Catalogues: Astrometric and Photometric Star Catalogues Derived from the ESA Hipparcos Space Astrometry Mission*, ESA Publications Division, Noordwijk, Netherlands.
- Perryman, M. A. C., and 18 colleagues 1997. The Hipparcos catalogue. *Astron. & Astroph.* **323**, L49-L52.
- Pollack, J.B., O. Hubickyj, P. Bodenheimer, J. J. Lissauer, M. Podolak, and Y. Greenzweig 1996. Formation of the giant planets by concurrent accretion of solids and gas. *Icarus* **124**, 62-85.
- Pravec, P., M. Wolf, L. Sarounova, A. W. Harris, and J. K. Davies 1997. Spin vector, shape, and size of the Amor asteroid (6053) 1993 BW<sub>3</sub>. *Icarus* **127**, 441-451.
- Qi, C., G. A. Blake, D. O. Muhleman, and M. A. Gurwell 1998. Interferometric imaging of comet Hale-Bopp with the Owens Valley Millimeter Array [abstract]. *Bull. Amer. Astron. Soc.* **30**, 1453.
- Rabinowitz, D. L., 1997. Are main-belt asteroids a sufficient source for the earth-approaching asteroids?. *Icarus* **127**, 33-54.
- Reach, W. T., M. V. Sykes, D. Lien, and J. K. Davies 1999. The dust trail of comet Encke. In preparation.
- Reitsema, H. J., W. A. Delamere, A. R. Williams, D. C. Boice, W. F. Huebner, and F. L. Whipple 1989. Dust distribution in the inner coma of comet Halley: comparison with models. *Icarus* **81**, 31-40.
- Richter, N. B., 1963. *The Nature of Comets*, English rev. ed. (A. Beer, trans.), Methuen & Co. Ltd., London.

- Rickman, H., 1991. The thermal history and structure of cometary nuclei. In *Comets in the Post-Halley Era* (R. L. Newburn, Jr., M. Neugebauer, and J. Rahe, Eds.), pp. 733-760. Kluwer Academic Publishers, Boston.
- Rickman, H., 2000. To appear in *Cometary Nuclei in Space and Time* (M. F. A'Hearn, Ed.), Astronomical Society of the Pacific, San Francisco.
- Rieke, G. H., M. J. Lebofsky, and F. J. Low 1985. An absolute photometric system at 10 and 20 microns. *Astron. J.* bf 90, 900-906.
- Roemer, E., 1965. Observations of comets and minor planets. *Astron. J.* **70**, 397-402.
- Roemer, E., and R. E. Lloyd 1966. Observations of comets, minor planets, and satellites. *Astron. J.* **71**, 443-457.
- Röser, S. and U. Bastian 1991. *PPM Star Catalogue*. Astronomisches Rechen-Institut Heidelberg and Spektrum Akademischer Verlag, Heidelberg.
- Salo, H., 1988. Monte Carlo modeling of the net effects of coma scattering and thermal reradiation on the energy input to cometary nucleus [sic]. *Icarus* **76**, 253-269.
- Samarasinha, N. H., 1997. Preferred orientations for the rotational angular momentum vector of periodic comets [abstract]. *Bull. Amer. Astron. Soc.* **29**, 743.
- Samarasinha, N. H., and M. J. S. Belton 1995. Long-term evolution of rotational stress and nongravitational effects for Halley-like cometary nuclei. *Icarus* **116**, 340-358.
- Sarmecanic, J., M. Fomenkova, B. Jones, and T. Lavezzi 1997. Constraints on the nucleus and dust properties from mid-infrared imaging of comet Hyakutake. *Astrophys. J. Lett.* **483**, L69-L72.
- Schenewerk, M. S., P. Palmer, L. E. Snyder, and I. de Pater 1986. VLA limits for comets Austin (1982 VI) and P/Crommelin (1983n) - evidence for a diffuse OH halo. *Astron. J.* **92**, 166-170.
- Schleicher, D. G., T. L. Farnham, B. R. Smith, E. A. Blount, E. Nielsen, and S. M. Lederer 1998a. Nucleus properties of comet Hale-Bopp (1995 O1) based on narrowband imaging [abstract]. *Bull. Amer. Astron. Soc.* **30**, 1063-1064.
- Schleicher, D. G., R. L. Millis, and P. V. Birch 1998b. Narrowband photometry of comet P/Halley: Variation with heliocentric distance, season, and solar phase angle. *Icarus* **132**, 397-417.
- Schleicher, D. G., R. L. Millis, D. J. Osip, and S. M. Lederer 1998c. Activity and the rotation period of comet Hyakutake (1996 B2). *Icarus* **131**, 233-244.
- Sekanina, Z., 1982. Split comets. In *Comets* (L. L. Wilkening, Ed.), pp. 251-287. University of Arizona Press, Tucson.
- Sekanina, Z., 1988a. Outgassing asymmetry of periodic comet Encke. I. Apparitions 1924-1984. *Astron. J.* **95**, 911-924.
- Sekanina, Z., 1988b. Outgassing asymmetry of periodic comet Encke. II. Apparitions 1868-1918 and a study of the nucleus evolution. *Astron. J.* **96**, 1455-1475.
- Sekanina, Z., 1988c. Nucleus of comet IRAS-Araki-Alcock (1983 VII). *Astron. J.* **95**, 1876-1894.
- Sekanina, Z., 1997. The problem of split comets revisited. *Astron. & Astrophys.* **318**, L5-L8.
- Sekanina, Z., 1999. A determination of the nuclear size of comet Hale-Bopp (C/1995 O1). *Earth, Moon, & Plan.*, accepted.
- Shao, C.-Y., 1973. Periodic comet Encke. *Int'l Astron. Union Circ.* **2591**.
- Shao, C.-Y., and G. Schwartz 1980. Periodic comet Encke. *Int'l Astron. Union Circ.* **3526**.
- Silva, D. R., and M. E. Cornell 1992. A new library of optical spectra. *Astrophys. J. Suppl. Ser.* **81**, 865-881.
- Smithsonian Astrophysical Observatory 1966. *Smithsonian Astrophysical Observatory Star Catalog*. Smithsonian Institution, Washington.
- Snyder, L. E., P. Palmer, and C. M. Wade 1983. An upper limit to the microwave continuum radiation from comet Austin (1982g). *Astrophys. J. Lett.* **269**, 21-23.
- Space Telescope Science Institute 1998. *Space Telescope Imaging Spectrograph instrument handbook*, World Wide Web URL  
<http://www.stsci.edu/cgi-bin/stis?cat=documents&subcat=ihb>,  
1 June 1998.
- Spencer, J. R., 1990. A rough-surface thermophysical model for airless planets. *Icarus* **83**, 27-38.

- Spencer, J. R., L. A. Lebofsky, and M. V. Sykes 1989. Systematic biases in radiometric diameter determinations. *Icarus* **78**, 337-354.
- Stellingwerf, R. F., 1978. Period determination using phase dispersion minimization. *Astrophys. J.* **224**, 953-960.
- Stern, S. A., 1988. Collisions in the Oort Cloud. *Icarus* **73**, 499-507.
- Stern, S. A., 1995. Collisional time scales in the Kuiper Disk and their implications. *Astron. J.* **110**, 856-868.
- Stern, S. A., and J. M. Shull 1988. The influence of supernovae and passing stars on comets in the Oort cloud. *Nature* **332**, 407-411.
- Swings, J.-P. 1985. *Transactions of the International Astronomical Union: Volume XIXB: Proceedings of the Nineteenth General Assembly*, Reidel Publishing Co., Dordrecht.
- Sykes, M. V., and R. G. Walker 1992. Cometary dust trails. I. Survey. *Icarus* **95**, 180-210.
- Tedesco, E. F., 1992. The IRAS minor planet survey. Technical Report PL-TR-92-2049. Phillips Laboratory, Hanscom Air Force Base, MA.
- Tedesco, E. F., and J. Gradie 1987. Discovery of M class objects among the near-Earth asteroid population. *Astron. J.* **93**, 738-746.
- Thomas, N., and H. U. Keller 1987. Comet P/Halley's near-nucleus jet activity. In *Symposium on the Diversity and Similarity of Comets* (E. J. Rolfe and B. Battrick, Eds.), pp. 337-342. European Space Agency Publications Division, Noordwijk, The Netherlands.
- Thomas, N., and H. U. Keller 1990. Interpretation of the inner coma observations of comet P/Halley by the Halley Multicolour Camera. *Ann. Geophys.* **8**, 147-166.
- Tokunaga, A., 1984. A reevaluation of the 20-micron magnitude system. *Astron. J.* **89**, 172-175.
- van Biesbroeck, G., 1962. Comet observations. *Astron. J.* **67**, 422-428.
- van der Bliek, N. S., J. Manfroid, and P. Bouchet 1997. Infrared aperture photometry at ESO (1983-1994) and its future use. *Astron. & Astroph. Supp.* **119**, 547-557.
- Vanýsek, V., 1984. Photometric system for the International Halley Watch. In *Asteroids Comets Meteors* (C.-I. Lagerkvist and H. Rickman, Eds.), pp. 355-358. Astronomiska Observatoriet, Uppsala, Sweden.
- Veeder, G. J., M. S. Hanner, D. L. Matson, E. F. Tedesco, L. A. Lebofsky, and A. T. Tokunaga 1989. Radiometry of near-earth asteroids. *Astron. J.* **97**, 1211-1219.
- Veeder, G. J., C. Kowal, and D. L. Matson 1984. The Earth-crossing asteroid 1983 TB. In *Lunar and Planetary Science XV: Abstracts of Papers Submitted to the Fifteenth Lunar and Planetary Science Conference*, pp. 878-879. Lunar and Planetary Institute, Houston, TX.
- Vorontsov-Velyaminov, B., 1946. Structure and mass of cometary nuclei. *Astrophys. J.* **104**, 226-233.
- Weaver, H. A., 1996. Comet C/1996 B2 (Hyakutake). *Int'l Astron. Union Circ.* **6363**.
- Weaver, H. A., P. D. Feldman, M. F. A'Hearn, C. Arpigny, J. C. Brandt, M. C. Festou, M. Haken, J. B. McPhate, S. A. Stern, and G. P. Tozzi 1997. The activity and size of the nucleus of comet Hale-Bopp (C/1995 O1). *Science* **275**, 1900-1904.
- Weaver, H. A., P. D. Feldman, M. F. A'Hearn, C. Arpigny, J. C. Brandt, and C. E. Randall 1996. An HST spectroscopic and imaging investigation of comet Hyakutake (C/1996 B2) [abstract]. *Bull. Amer. Astron. Soc.* **28**, 925.
- Weaver, H. A., and P. L. Lamy 1999. Estimating the size of Hale-Bopp's nucleus. *Earth, Moon, & Plan.*, accepted.
- Weissman, P. R., 1986. Are cometary nuclei primordial rubble piles?. *Nature* **320**, 242-244.
- Weissman, P. R., 1991. Dynamical history of the Oort Cloud. In *Comets in the Post-Halley Era* (R. L. Newburn, Jr., M. Neugebauer, and J. Rahe, Eds.), pp. 463-486. Kluwer Academic Publishers, Boston.
- Wetherill, G. W., 1988. Where do the Apollo objects come from?. *Icarus* **76**, 1-18.
- Wetherill, G. W., 1991. End products of cometary evolution - Cometary origin of earth-crossing bodies of asteroidal appearance. In *Comets in the Post-Halley Era* (Newburn, R. L., M. Neugebauer, J. Rahe, eds.). Kluwer Academic Publishers, Dordrecht, pp. 537-556.

- Whipple, F. L., 1950. A comet model. I. The acceleration of comet Encke. *Astrophys. J.* **111**, 375-394.
- Whipple, F. L., 1982. The rotation of cometary nuclei. In *Comets* (L. L. Wilkening, Ed.), pp. 227-250. University of Arizona Press, Tucson.
- Whipple, F. L., 1983. 1983 TB and the Geminid meteors. *Int'l Astron. Union Circ.* **3881**.
- Whipple, F. L., and S. Zekanina 1979. Comet Encke: precession of the spin axis, nongravitational motion, and sublimation. *Astron. J.* **84**, 1894-1909.
- Williams, D. M., C. G. Mason, R. D. Gehrz, T. J. Jones, C. E. Woodward, D. E. Harker, M. S. Hanner, D. H. Wooden, F. C. Witteborn, and H. M. Butner 1997. Measurement of submicron grains in the coma of comet Hale-Bopp C/1995 01 during 1997 February 15-20 UT. *Astrophys. J.* **489**, L91-L194.
- Winter, D. F., and J. M. Saari 1969. A particulate thermophysical model of the lunar soil. *Astrophys. J.* **156**, 1135-1151.
- Woodgate, B. E., and 43 colleagues 1998. The Space Telescope Imaging Spectrograph design. *Publ. Astron. Soc. Pacific* **110**, 1183-1204.
- Wurm, K., 1939. On the interpretation of the spectra of comets and their forms. *Astrophys. J.* **89**, 312-319.
- Zombeck, M. V., 1990. *Handbook of Space Astronomy and Astrophysics*, 2nd ed., University Press, Cambridge.

