

## VITA

### **Bruce A. Wilking**

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### **Personal:**

Birthdate: March 24, 1954  
Birthplace: Decatur, Illinois  
Citizenship: USA

### **Education:**

B.S. in Astronomy, Univ. of Illinois, Urbana, Illinois, 1976  
Ph.D. in Planetary Science, Univ. of Arizona, Tucson, Arizona, 1981, (Advisor: Charles Lada)

### **Employment:**

9/00-present Chairperson, Dept. of Physics & Astronomy, Univ. of Missouri-St. Louis  
9/93-present Professor of Astronomy, Univ. of Missouri-St. Louis  
9/90-8/91 Visiting Scientist, Harvard-Smithsonian Center for Astrophysics  
9/88-9/93 Associate Professor of Astronomy, Univ. of Missouri-St. Louis  
9/84-9/88 Assistant Professor of Astronomy, Univ. of Missouri St. Louis  
9/83-9/84 Lecturer in the Astronomy Department, Univ. of Texas at Austin  
8/81-9/84 Postdoctoral research associate in the Astronomy Department, Univ. of Texas at Austin  
9/76-8/81 Graduate research assistant in Planetary Sciences, Univ. of Arizona

### **Scholastic Honors:**

Phi Beta Kappa, 1975  
Magna Cum Laude, Highest Distinction in Astronomy, University of Illinois, 1976

### **Membership in Professional Societies:**

American Astronomical Society  
Sigma Xi

### **Professional Service:**

User's Committee, Infrared Processing and Analysis Center, Pasadena, CA, 1987-1992.  
Committee on Operations and Plans, NEROC Haystack Observatory, Westford, MA, 1991-1993.  
Telescope Allocation Committee, Infrared Telescope Facility (IRTF), Mauna Kea, Hawaii, 1995-1997.  
NSF CAREER Proposal Panelist, Division of Astronomical Sciences, Washington, DC, January 1997.  
Panelist in Young Stellar Object Group, Support Capabilities for Large Telescopes Workshop, NOAO, Tucson, AZ, September 1997.  
Proposal Reviewer for NRAO 12-Meter Telescope, 1999-2000  
Proposal Reviewer for Hubble Space Telescope Cycle 13, March 2004

## Recent Presentations:

“Young Brown Dwarfs”, colloquium presented at East Carolina University, May 2004.

“Young Stellar and Substellar Objects in the Rho Ophiuchi Molecular Cloud”, poster presentation at Protostars and Planets V, Kona, Hawaii, October 2005.

“Brown Dwarfs in Young Star Clusters”, colloquium presented at Truman State University, February 2007.

“Multi-Epoch VLBI Observations of Water Masers Associated with NGC 1333/IRAS4A and IRAS4B”, poster presentation at Transformational Science with ALMA: Through Disks to Stars and Planets, Charlottesville, VA, June 2007.

“The Surface Population of the Serpens Molecular Cloud”, poster presentation at the 212th meeting of the American Astronomical Society, St. Louis, MO, June 2008.

“Star Formation in the Rho Ophiuchi Molecular Cloud: A Laboratory for Low Mass Star Formation”, O.M. Stewart Colloquium, University of Missouri-Columbia, February 2009.

## Research Grants:

### *Internal Awards*

1984–UM-St. Louis - Improved Research Quality. \$6,243. “Theoretical and Observational Studies of the Formation of Star Clusters.”

1985–Univ. of Missouri - Weldon Spring Research Award. \$12,615. “The Formation of Star Clusters.”

1986–UM-St. Louis - Summer Research Fellowship. \$3,500. “Infrared Observations and Theoretical Models of Young Star Clusters.”

1989–Univ. of Missouri - Weldon Spring Research Award. \$11,000. “Low Mass Star Formation in Southern Molecular Clouds”.

1994–Univ. of Missouri Research Board. \$27,700. “The Relationship Between Water Masers and Star Formation”.

1994–UM-St. Louis. \$8,684. “High Resolution Observations of Water Masers Associated with Low Mass Stars”.

2001–Univ. of Missouri Research Board. \$19,820. “Brown Dwarfs in the NGC 1333 Star-Forming Cloud”.

2008–Univ. of Missouri Research Board. \$15,300. “The First Wave of Star Formation in the Ophiuchus and Serpens Molecular Clouds”.

### *External Awards*

1986–NASA. \$18,800. “An IRAS General Investigator Program Proposal to Study the Luminosity Function of Young Dust-Embedded Clusters.”

1987–NASA. \$20,866. “A SADAP Proposal to Study the Luminosity Functions of Young Dust-Embedded Clusters.”

1989–NASA. \$24,000. “An ADP Proposal to Study the Formation and Evolution of Dust-Embedded Clusters”.

1991–NASA. \$31,273. “Comparative Studies of Dust-Embedded Populations”.

1991–NATO. \$4,800. “Evolution of Pre-Main Sequence Binary Stars”.

1993–NATO. \$4,950. “Evolution of Pre-Main Sequence Binary Stars”.

1995–NSF. \$60,938. “Toward the Mass Function of the Rho Ophiuchi Infrared Cluster”(2 year award).

1997–NSF. \$2,000. Supplement for Research Experience for Undergraduates.

1998–NASA. \$51,400. “The Nature of Weak Radio Sources in the Rho Oph Core”.

1999–NSF. \$129,406. “Substellar Populations and the Mass Functions in Young Clusters” (3 year award).

2004–NASA. \$13,142. “The Origins of Substellar Masses”  
2004–NASA. \$41,698. “NASA/Missouri Space Grant Consortium: UM-St. Louis Program.”  
2005–NASA. \$30,713. “NASA/Missouri Space Grant Consortium: UM-St. Louis Program.”  
2006–NASA. \$53,796. “NASA/Missouri Space Grant Consortium: UM-St. Louis Program.”  
2007–NASA. \$45,000. “NASA/Missouri Space Grant Consortium: UM-St. Louis Program.”  
2008–NASA. \$55,000. “NASA/Missouri Space Grant Consortium: UM-St. Louis Program.”

### Published Papers:

1. “Stellar Occultations by Turbulent Planetary Atmospheres: A Wave Optical Theory Including a Finite Scale Height,” Hubbard, W.B., Jokipii, J.R., and Wilking, B.A., *Icarus*, **34**, 374, 1978.
2. “Infrared Polarimetry in the  $\rho$  Ophiuchi Dark Cloud,” Wilking, B.A., Lebofsky, M.J., Rieke, G.H., and Kemp, J.C., *Astronomical Journal*, **84**, 199, 1979.
3. “The Wavelength Dependence of Interstellar Linear Polarization,” Wilking, B.A., Lebofsky, M.J., Martin, P.G., Rieke, G.H., and Kemp, J.C., *Astrophysical Journal*, **235**, 905, 1980.
4. “ $^{13}\text{CO}$  Self-Absorption in the  $\rho$  Ophiuchi Dark Cloud,” Lada, C.J., and Wilking, B.A., *Astrophysical Journal*, **238**, 620, 1980.
5. “Infrared Observations of B35: Heat Sources for Bright-Rimmed Molecular Clouds,” Lada, C.J., and Wilking, B.A., *Astrophysical Journal*, **242**, 1056, 1980.
6. “Far-Infrared Photometry of Compact Extragalactic Objects: Detection of 3C 345,” Harvey, P.M., Wilking, B.A., and Joy, M., *Astrophysical Journal (Letters)*, **254**, L29, 1982.
7. “The Wavelength Dependence of Interstellar Linear Polarization: Stars with Extreme Values of  $\lambda_{max}$ ,” Wilking, B.A., Lebofsky, M.J., and Rieke, G.H., *Astronomical Journal*, **87**, 695, 1982.
8. “Far-Infrared Observations of Optical Emission Line Stars II,” Harvey, P.M., and Wilking, B.A., *Publications of the Astronomical Society of the Pacific*, **94**, 258, 1982.
9. “Far-Infrared Observations of Low-Mass Star Formation in Orion: H-H Objects,” in *Symposium on the Orion Nebula to Honor Henry Draper*, Harvey, P.M., Wilking, B.A., and Cohen, M., *Annals of the New York Academy of Sciences*, **395**, 199, 1982. (non-refereed)
10. “The Discovery of New Embedded Sources in the Centrally Condensed Core of the Rho Ophiuchi Dark Cloud: The Formation of a Bound Cluster?” Wilking, B.A., and Lada, C.J., *Astrophysical Journal*, **274**, 698, 1983.
11. “Infrared Observations of Dust Cloud Structure in Young R Associations: NGC 1333, S 68, and NGC 7129,” Harvey, P.M., Wilking, B.A., and Joy, M., *Astrophysical Journal*, **278**, 156, 1984.
12. “The Formation of Massive Stars Along the W5 Ionization Front,” Wilking, B.A., Harvey, P.M., Lada, C.J., Joy, M., and Doering, C.R., *Astrophysical Journal*, **279**, 291, 1984.
13. “Far-Infrared Studies of Herbig-Haro Objects and Their Exciting Stars,” Cohen, M., Schwartz, R.D., Harvey, P.M., and Wilking, B.A., *Astrophysical Journal*, **278**, 671, 1984.
14. “On the Far-Infrared Excess of Vega,” Harvey, P.M., Wilking, B.A., and Joy, M., *Nature*, **307**, 441, 1984.
15. “Infrared and Millimeter-Wave Observation of the Sharpless 156 Molecular Cloud,” Joy, M., Evans, N.J. II, Harvey, P.M., and Wilking, B.A., *Astrophysical Journal*, **284**, 161, 1984.
16. “The Nature of the Embedded Population in the Rho Ophiuchi Dark Cloud: Mid-Infrared Observations,” Lada, C.J., and Wilking, B.A., *Astrophysical Journal*, **287**, 610, 1984.
17. “High Resolution Far-Infrared Observations in the IC 5146 Dark Cloud,” Wilking, B.A., Harvey, P.M., and Joy, M., *Astronomical Journal*, **89**, 496, 1984.
18. “Far-Infrared Observations of Southern Herbig-Haro Objects,” Cohen, M., Schwartz, R.D., Harvey, P.M., and Wilking, B.A., *Astrophysical Journal*, **281**, 250, 1984.

19. "NGC 6334-V - An Infrared Bipolar Nebula," Harvey, P.M., and Wilking, B.A., *Astrophysical Journal (Letters)*, **280**, L19, 1984.
20. "Far-Infrared Photometry of Compact Extragalactic Sources: OJ 287 and BL Lac," Harvey, P.M., Joy, M., Lester, D.F., and Wilking, B.A., *Astrophysical Journal (Letters)*, **287**, L9, 1984.
21. "An Infrared Study of the Bipolar Outflow Region GGD 12-15," Harvey, P.M., Wilking, B.A., Joy, M., and Lester, D.F., *Astrophysical Journal*, **288**, 725, 1985.
22. "Far-Infrared Observation of Young Clusters Embedded in the R Coronae Australis and Rho Ophiuchi Dark Clouds," Wilking, B.A., Harvey, P.M., Joy, M., Hyland, A.R. and Jones, T.J., *Astrophysical Journal*, **293**, 602, 1985.
23. "The Chamaeleon Dark Cloud Complex II: A Deep Survey Around HD 97300," Jones, T.J., Hyland, A.R., Harvey, P.M., Wilking, B.A., and Joy, M., *Astronomical Journal*, **90**, 1191, 1985.
24. "The Formation of Bound Clusters," Wilking, B.A., and Lada, C.J., invited review paper appearing in *Protostars and Planets II*, eds., D. Black and M. S. Matthews (Tucson: Univ. of Arizona Press), p. 297, 1985.
25. "Star Formation in the Centrally Condensed Core of the Rho Ophiuchi Dark Cloud," Wilking, B.A., invited review paper appearing in *Nearby Molecular Clouds*, ed. G. Serra (Berlin: Springer-Verlag), p. 104, 1985.
26. "An Infrared Study of the NGC 1977 HII Region/Molecular Cloud Interface," Makinen, P.M., Harvey, P.M., Wilking, B.A., and Evans, N.J. II, *Astrophysical Journal*, **299**, 341, 1986.
27. "High Angular Resolution Infrared Mapping of the Compact HII Regions W51 and DR21/W75," Harvey, P.M., Joy, M., Lester, D.F., and Wilking, B.A., *Astrophysical Journal*, **300**, 737, 1986.
28. "Infrared Studies of the HH 1-2 Region," Harvey, P.M., Joy, M., Lester, D.F., and Wilking, B.A., *Astrophysical Journal*, **301**, 346, 1986.
29. "The Circumstellar Environment of LkH $\alpha$  234," Wilking, B.A., Mundy, L.G., and Schwartz, R.D., *Astrophysical Journal (Letters)*, **303**, L61, 1986.
30. "High Resolution IRAS Observations of the Rho Ophiuchi Cloud Core," Young, E.T., Lada, C.J., and Wilking, B.A., *Astrophysical Journal (Letters)*, **304**, L45, 1986.
31. "The Nature of the Infrared Cluster in the R Coronae Australis Cloud Core," Wilking, B.A., Taylor, K.N.R., and Storey, J.W.V., *Astronomical Journal*, **92**, 103, 1986.
32. "Spectroscopic Evidence for Infall Around an Extraordinary IRAS Source in Ophiuchus," Walker, C.K., Lada, C.J., Young, E.T., Maloney, P.R., and Wilking, B.A., *Astrophysical Journal (Letters)*, **309**, L47, 1986.
33. "Resolution of Structure in the Protostellar Source IRAS 16293-2422," Mundy, L.G., Wilking, B.A., and Myers, S., *Astrophysical Journal (Letters)*, **311**, L75, 1986.
34. "Star Formation in the Magellanic Clouds III. IR Observations of Giant HII Regions," Jones, T.J., Hyland, A.R., Straw, S., Harvey, P.M., Wilking, B.A., Joy, M., Gatley, I., and Thomas, J.A., *Monthly Notices of the Royal Astronomical Society*, **219**, 603, 1986.
35. "Molecular Clouds in the Outer Galaxy I. Far-Infrared Observations," Mead, K.N., Kutner, M.L., Evans, N.J., II, Harvey, P.M., and Wilking, B.A., *Astrophysical Journal*, **312**, 321, 1987.
36. "An Active Star Formation Site in RCW 108," Straw, S., Hyland, A.R., Jones, T.J., Harvey, P.M., Wilking, B.A., and Joy, M., *Astrophysical Journal*, **314**, 283, 1987.
37. "Milli Arsecond Resolution Infrared Observations of Young Stars in Taurus and Ophiuchus," Simon, M., Howell, R.R., Longmore, A.J., Wilking, B.A., Peterson, D.M., and Chen W.-P., *Astrophysical Journal*, **320**, 344, 1987.
38. "An H $\alpha$  Emission-Line Survey of the Rho Ophiuchi Dark Cloud Complex," Wilking, B.A., Schwartz, R.D., and Blackwell, J.H., *Astronomical Journal*, **94**, 106, 1987.
39. "Water Masers Associated with Low Mass Stars: A Survey of the Rho Ophiuchi Infrared Cluster," Wilking, B.A., and Claussen, M.J., *Astrophysical Journal (Letters)*, **320**, L133, 1987.

40. "Line Identifications in the Infrared Spectrum of SN1987A", Elias, J. H., Gregory, B., Williams, R. E., Graham, J. R., Meikle, W. P. S., Schwartz, R. D., and Wilking, B. A., *Astrophysical Journal (Letters)*, **331**, L9, 1988.
41. "IRAS Observations of the  $\rho$  Ophiuchi Infrared Cluster: Spectral Energy Distributions and Luminosity Function", Wilking, B. A., Lada, C. J., and Young, E. T., *Astrophysical Journal*, **340**, 823, 1989.
42. "The Formation of Low Mass Stars", Wilking, B. A., *Publications of the Astronomical Society of the Pacific*, **101**, 229, 1989.
43. "Millimeter-Wave Spectral Line and Continuum Survey of Cold IRAS Sources", Wilking, B. A., Mundy, L. G., Blackwell, J. H., and Howe, J. E., *Astrophysical Journal*, **345**, 257, 1989.
44. "Shocked Molecular Hydrogen Emission from Herbig-Haro Objects and Their Exciting Stars", Wilking, B. A., Schwartz, R. D., Mundy, L. G., and Schultz, A. S. B., *Astronomical Journal*, **99**, 344, 1990.
45. "The Circumstellar Structure of IRAS 16293-2422:  $C^{18}O$ ,  $NH_3$ , and CO Observations", Mundy, L. G., Wootten, H. A., and Wilking, B. A., *Astrophysical Journal*, **352**, 159, 1990.
46. "High-Velocity Molecular Gas Associated with Cold IRAS Sources", Wilking, B. A., Blackwell, J. H., and Mundy, L. G., *Astronomical Journal*, **100**, 758, 1990.
47. "Cold  $DCO^+$  Cores and Protostars in the Warm  $\rho$  Ophiuchi Cloud", Loren, R. B., Wootten, H. A., and Wilking, B. A., *Astrophysical Journal*, **365**, 269, 1990.
48. "A Search for Embedded Young Stellar Objects In and Near the IC1396 Complex", Schwartz, R. D., Gyulbudagian, A. L., and Wilking, B. A., *Astrophysical Journal*, **370**, 263, 1991.
49. "Star Formation in the Ophiuchus Molecular Complex", Wilking, B. A., invited review chapter in *Low Mass Star Formation in Southern Molecular Clouds*, ed. B. Reipurth, (Garching: European Southern Observatory), pp. 159-183, 1991.
50. "IRAS 16293-2422: A Very Young Binary System?", Mundy, L. G., Wootten, H. A., Wilking, B. A., Blake, G. A., and Sargent, A., *Astrophysical Journal*, **385**, 306, 1992.
51. "IRAS Observations of Young Stellar Objects in the Corona Australis Dark Cloud", Wilking, B. A., Greene, T. P., Lada, C. J., Meyer, M. R., and Young, E. T., *Astrophysical Journal*, **397**, 520-533, 1992.
52. "Infrared Companions: Clues to Binary Star Formation", Zinnecker, H. and Wilking, B., in *Binaries as Tracers of Stellar Formation*, ed. A. Duquennoy and M. Mayor, (Cambridge: Cambridge Univ. Press), pp. 269-277, 1992. (non-refereed)
53. "Young Low Mass Stars in the Vicinity of  $\sigma$  Scorpii", Meyer, M. R., Wilking, B. A., and Zinnecker, H., *Astronomical Journal*, **105**, 619-629, 1993.
54. "Near-Infrared Images of Star-Forming Regions", Zinnecker, H., McCaughrean, M. J., Rayner, J. T., Wilking, B. A., and Moneti, A., in *Reviews in Modern Astronomy 6, Stellar Evolution and Interstellar Matter*, ed. G. Klare, (Berlin: Springer-Verlag), pp. 191-208, 1993. (non-refereed)
55. "The Initial Stellar Population", Zinnecker, H., McCaughrean, M., and Wilking, B., invited review chapter in *Protostars and Planets III*, eds. E. H. Levy, J. I. Lunine and M. S. Matthews (Tucson: Univ. of Arizona Press), pp. 429-495, 1993.
56. "IRAS 21391+5802: A Study in Intermediate Mass Star Formation", Wilking, B. A., Mundy, L. G., McMullin, J. P., Hezel, T., and Keene, J., *Astronomical Journal*, **106**, 250-259, 1993.
57. "Structure and Chemistry in the Northwestern Condensation of the Serpens Molecular Cloud Core", McMullin, J., Mundy, L. G., Wilking, B. A., Hezel, T., and Blake, G., *Astrophysical Journal*, **424**, 222-236, 1994.
58. "Low-Luminosity Members of the R Coronae Australis Infrared Cluster", Wilking, B., Giblin, T., McCaughrean, M., Rayner, J., Burton, M., and Zinnecker, H., in *Infrared Astronomy with Arrays: The Next Generation*, ed. I. McLean, (Dordrecht: Kluwer), pp. 17-20, 1994. (non-refereed)
59. "Further Mid-Infrared Study of the  $\rho$  Ophiuchi Cloud Young Stellar Population: Luminosities and Masses of Pre-Main-Sequence Stars", Greene, T., Wilking, B., Andre, P., Lada, C., and Young, E., *Astrophysical Journal*, **434**, 614-626, 1994.

60. "Water Masers Associated with Low Mass Stars: A 13 Month Monitoring Survey", Wilking, B. A., Claussen, M. J., Benson, P. J., Terebey, S., and Wootten, H. A., *Astrophysical Journal Letters*, **431**, L119-L122, 1994.
61. "A Monthly Survey of Water Masers Associated with Low Mass Stars", Claussen, M. J., Wilking, B. A., Benson, P. J., Wootten, H. A., Myers, P. C., and Terebey, S., *Astrophysical Journal Supplement*, **106**, 111-132, 1996.
62. "The Origin of Low Mass Stars", invited review in the journal *Origin of Life and Evolution of the Biosphere*, **27**, 135-155, 1997. same text appears in the book *Planetary and Physical Processes Relevant to the Origin of Life*, ed. D. C. B. Whittet, Kluwer: Dordrecht), 1997.
63. "Herbig-Haro Objects in the  $\rho$  Ophiuchi Cloud", Wilking, B. A., Schwartz, R. D., Fanetti, T. M., and Friel, E. D., *Publications of the Astronomical Society of the Pacific*, **109**, 549-553, 1997.
64. "Deep Infrared Imaging in the R Corona Australis Cloud Core", Wilking, B., McCaughrean, M., Burton, M., Giblin, T., Rayner, J., and Zinnecker, H., *Astronomical Journal*, **114**, 2029-2042, 1997.
65. "Circularly Polarized Radio Emission from an X-Ray Protostar", Feigelson, E., Carkner, L., & Wilking, B., *Astrophysical Journal Letters*, **494**, L215-L218, 1998.
66. "Water Masers in the Circumstellar Environments of Young Stellar Objects", Meehan, L., Wilking, B., Claussen, M. J., Mundy, L. G., & Wootten, A., *Astronomical Journal*, **115**, 1599-1609, 1998.
67. "Distribution and Motion of the Water Masers Near IRAS 05413-0104", Claussen, M. J., Marvel, K. B., Wootten, A., & Wilking, B. A., *Astrophysical Journal Letters*, **507**, L79-L82, 1998.
68. "Spectroscopy of Brown Dwarf Candidates in the  $\rho$  Ophiuchi Molecular Core", Wilking, B. A., Greene, T. P., & Meyer, M. R., *Astronomical Journal*, **117**, 469-482, 1999.
69. "A Spectral Line Study of Serpens S68 FIRS1 Region", McMullin, J. P., Mundy, L. G., Blake, G. A., Wilking, B. A., & Mangum, J. G., *Astrophysical Journal*, **536**, 835-856, 2000.
70. "Infrared Properties of Weak Radio Sources in the  $\rho$  Ophiuchi Molecular Cloud", Wilking, B. A., Bontemps, S., Schuler, R., Greene, T. P., & André, P., *Astrophysical Journal*, **551**, 357-366, 2001.
71. "Overview of Cluster Properties", Wilking, B., invited review *From Darkness to Light: Origin and Evolution of Young Stellar Clusters*, eds. T. Montmerle & Ph. André, (ASP: San Francisco), pp. 353-366, 2001.
72. "Spectroscopy of Brown Dwarf Candidates in the NGC 1333 Molecular Cloud", Wilking, B., Mikhail, A., Carlson, G., Meyer, M., & Greene, T., in *Brown Dwarfs: IAU Symposium 211*, ASP Conference Series Vol. 211, ed. E. L. Martin, (ASP: San Francisco), pp. 97-101, 2003.
73. "Low Mass Stars and Substellar Objects in the NGC 1333 Molecular Cloud", Wilking, B., Meyer, M., Greene, T., Mikhail, A., & Carlson, G., *Astronomical Journal*, **127**, 1131-1146, 2004.
74. "Optical Spectroscopy of the Surface Population of the Rho Ophiuchi Molecular Cloud: The First Wave of Star Formation", Wilking, B. A., Meyer, M. R., Robinson, J. R., Greene, T. P., *Astronomical Journal*, **130**, 1733-1751, 2005.
75. "Coordinated Multiwavelength Observations of 3C 66A during the WEBT campaign of 2003-2004", Boettcher, M., Tartar, J. B., Wilking, B. A., and 67 co-authors, *Astrophysical Journal*, **631**, 169-186, 2005.
76. "Searching for proto-brown dwarfs: Extending near IR spectroscopy of protostars below the hydrogen-burning limit", Covey, K., Greene, T., Doppmann, G., Lada, C., & Wilking, B., *Astronomische Nachrichten*, **326**, 886-890, 2005.
77. "Testing the inverse-Compton catastrophe scenario in the intra-day variable blazar S5 0716+71 I. Simultaneous broadband observations during November 2003", Ostorero, L., Tartar, J. B., Wilking, B. A., and 82 co-authors, *Astronomy & Astrophysics*, **451**, 797-807, 2006.
78. "HST/NICMOS Observations of NGC 1333: The Ratio of Stars to Sub-stellar Objects", Greissl, J., Meyer, M. R., Wilking, B. A., Fanetti, T., Schneider, G., Greene, T. P., and Young, E., *Astronomical Journal*, **133**, 1321-1330, 2007.
79. "Time-Resolved AU-Scale Jets Traced by Masers in the IRAS 4A/B Regions in NGC 1333", Marvel, K. B., Wilking, B. A., Claussen, M. J., & Wootten, H. A., *Astrophysical Journal*, **685**, 285-297, 2008.

80. "Star Formation in the Rho Ophiuchi Molecular Cloud", Wilking, B. A., Gagné, M., & Allen, L. E., invited review chapter in **Handbook of Star Forming Regions, Vol II The Southern Sky**, ASP Monograph Series Vol. 5, ed. B. Reipurth, (ASP: San Francisco), 351-380, 2008.

81. "Infrared Spectra of Young Stars Embedded in the R Coronae Australis Cloud Core", Meyer, M. R. & Wilking, B. A. 2009, *Publications of the Astronomical Society of the Pacific*, **121**, 350-358, 2009.

## Teaching Activity:

### *Courses Taught at UM-St. Louis:*

1. Cosmic Evolution/Introductory Astronomy (Astronomy 1001, no college algebra prerequisite)
2. Planets and Life in the Universe (Astronomy 1011, no college algebra prerequisite)
3. Practical Astronomy (Astronomy 1022)
4. Introduction to Astronomy I (Astronomy 1050, math prerequisite)
5. Introduction to Astronomy II (Astronomy 1051, math prerequisite)
6. The Search for Extraterrestrial Life (Astronomy 2121)
7. Astrophysics (Astronomy 4301)
8. Observational Astronomy (Astronomy 4322)
9. Independent Study (Undergraduate and Graduate level: Physics 3390, 4381, 6490)

### *Continuing Education Courses:*

1. "Halley's Comet" (1985-1986)
2. "Starbirth and the Formation of the Solar System", Saturday Science Seminar for high school teachers (1989)

### *Public Outreach Programs and NASA/Missouri Space Grant Consortium:*

1. Schedule Monthly Public Open Houses at Campus Observatory. Help maintain "Skywatch Hotline" answering machine. (1985-present)
2. Direct research projects for both high school and undergraduate students during the summer and academic year which are funded by the NASA/Missouri Space Grant Consortium. (1990-present)
3. Direct program at campus planetarium for local 5th grade students sponsored by the NASA/Missouri Space Grant Consortium. The program involves about 500 students per year. (1995-present)
4. Co-host for state-wide annual meeting of NASA/Missouri Space Grant Consortium, April 1996 and April 2001 and host April 2006.

### *Selected Master's and Ph.D. Committees:*

1. James H. Blackwell, Master's thesis, "High Velocity Molecular Gas From Cold IRAS Sources" (1989) (Chair).
2. Michael R. Meyer, Master's thesis paper, "Young Stellar Objects in the Vicinity of  $\sigma$  Scorpii" (1991).
3. William D. Horst, Ph.D. (Univ. of MO-Columbia), "Multicolor Photometry of Barred Spiral Galaxies" (1992).
4. Timothy W. Giblin, Master's degree (1993).
5. Lebee S. G. Meehan, Master's thesis, "A Radio Continuum and Spectral Line Study of Five Young Stellar Objects with Associated H<sub>2</sub>O Maser Emission" (1997) (Chair).
6. Michael J. Way, Ph.D., "Spectroscopic Studies of Abell Clusters" (1998).
7. Zhongyu Zhang, Ph.D., "The Age of Starbursts in the Cluster Abell 3266" (2003).
8. Tina M. Fanetti, Master's thesis, "Determining the Spectral Type of Brown Dwarfs Using the Water Index" (2005) (Chair).

## **Service:**

### *Service within Department:*

Since my hiring in 1984, I have regularly served on Department committees. From 1995–2000, I served as *Graduate Coordinator* and was responsible for admitting students to our M.S. and cooperative Ph.D. programs, organizing the departmental biweekly Journal Clubs, and editing the Alumni Newsletter. I was elected as Department Chair in August 2000.

### *Campus Committees:*

1. Library Committee (1985-1987)
2. Academic Computer User's Committee (1987-1990)
3. Faculty Council's Ad Hoc Computer Policy Committee (1989)
4. Doctoral Faculty Selection Committee (1990)
5. Department Representative to the Faculty Council (1991-1993)
6. Senate Committee on Computing (1992-1994)
7. Chancellor's Committee for Review (1992-1994)
8. Member of University Senate (1994-2000, 2005-2008)
9. Senate Executive Committee (1994-1997)
10. Senate Committee for Student Affairs (1994-1998), Chair (1994-1997)
11. Chancellor's Search Committee for the Vice Chancellor for Student Affairs (1997)
12. College Academic Advising Committee (1997-1998), Chair (1997).
13. Member of Graduate Council (1998-2000), Chair of the Rules & Regulations Subcommittee (1998-1999).
14. Member of the Senate Committee on Appointments, Tenure, and Promotion (1998-2000), Co-Chair (1999-2000).
14. Executive Board Member, NASA/Missouri Space Grant Consortium (2003-present)
15. Member of Admissions Council (2003-present)
16. Member of Research Advisory Council (2003-present)
17. Member of Dean's Advisory Committee on Tenure & Promotion (2005)
18. Member of University Assembly Committee on Recruitment, Admissions, and Retention (2005-2007)
19. Member of Search Committee, Director, Center for Molecular Electronics (2004-2006)
20. Member, UM-St. Louis Chapter of Sigma Xi (Vice President: 2005-2007, President: 2007-present)

### *Professional Service:*

1. Regularly review proposals for the National Science Foundation and NASA and manuscripts for the *Astrophysical Journal*, *Astrophysical Journal Letters*, *Astronomical Journal*, *Astronomy and Astrophysics*: A European Journal, *Monthly Notices of the Royal Astronomical Society*, and *Protostars and Planets*.
2. User's Committee for Infrared Processing and Analysis Center, Pasadena, CA (1987-1992).
3. Local organizing committee for 172nd meeting of the American Astronomical Society, June 1988.
4. Committee on Operations and Plans, NEROC Haystack Observatory, Westford, MA, (1991-1993).
5. Telescope Allocation Committee, Infrared Telescope Facility (IRTF), Mauna Kea, Hawaii (1995-1997)
6. NSF Review Panelist for CAREER proposals in astronomy (January 1997).
7. Panelist in Young Stellar Object group, Support Capabilities for Large Telescopes Workshop, NOAO, Tucson, AZ (September 1997).
8. Proposal reviewer for the National Radio Astronomy Observatory 12 meter Telescope (1999-2000).
9. Proposal reviewer for Hubble Space Telescope Cycle 13 (March 2004).
10. Session Chair, American Astronomical Meeting 205 (January 2005)