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Educational Background:

Summer 1998	Ph.D., Physics, University of Wisconsin, Madison
December 1994	M.S., Physics, University of Wisconsin, Madison
Spring 1990	B.S., Physics, Massachusetts Institute of Technology

Research Experience:

2002–present	National Research Council Fellow–NASA Goddard Space Flight Center (Oliversen): Time-resolved study of [O I] 6300 Å emission in Io's atmosphere as a probe of the plasma torus. Using AI programming techniques, reduced $>$ 3000 high-resolution spectra taken with the stellar spectrograph (SSG) at the McMath-Piece Solar telescope. Produced web-accessible database of the observations. Created object-oriented non-linear least-squares fitting algorithm. Since fall 1997, observed Io with the SSG and the plasma torus with novel narrow-band imaging techniques for $\sim$ 1 month per year. Improved alignment techniques for the SSG, which has helped identify nearly all of the systematic problems in the instrument.
2001–2002	Assistant Scientist, University of Wisconsin–Madison (Harris)
1998–2001	Research Associate, University of Wisconsin–Madison (Scherb/Roesler/Harris): Studied [O I], [C I], OH, H Balmer-α, and H_2O^+ in comet Hale-Bopp using narrow band Fabry-Pérot images and multi-object spectrograph (MOS) data. Calculated flat-field and field rotation parameters of the Wisconsin H-α Mapper (WHAM) experiment.
1995–1998	Ph.D. Thesis Student, University of Wisconsin–Madison (McCammon/Sanders): *The Study of the Interstellar Diffuse X-ray Background Between 150 eV and 280 eV with the Diffuse X-ray Spectrometer (DXS)*. Completed analysis of large dataset from a space shuttle payload.
1991–1995	Graduate Research Assistant, University of Wisconsin–Madison (McCammon): Completed design and fabrication of first stage field effect transistor (FET) containment system and participated in payload integration and testing of the X-ray Quantum Calorimeter (XQC), a sounding rocket payload demonstrating the feasibility of the X-ray detectors used on the Japanese satellites ASTRO-E and ASTRO-E2.
1989–1990	Senior Thesis Student, MIT CCD Lab (George Ricker/Mark Bautz): *The Study of Charge-Coupled Device Soft X-ray Quantum Efficiency*. Observed a multi-target alpha-particle fluoresced X-ray source with a CCD camera and thin-windowed proportional counter.

Teaching Experience:

Summer 2003	Integrating NASA Research with Middle School Math and Science Assistant Mentor: Provided guidance and advice to *Teach for America* sixth-grade science teacher Rachel Liebman as she developed a thematically integrated curriculum and several lesson plans. Supplemented the scientific portion of her recently completed college education with many impromptu lectures on physics, astronomy, and earth science topics. Encouraged a love for science.
Summer 2003	Strategic Preparedness Advancing Careers in Engineering (SPACE) Intern Assistant Mentor: Provided oversight of Morehouse College Sophomore, Jéan-Claude Davis, as he developed a web tool for accessing an extensive database of astronomical observations.
Summer 2001	Madison Metropolitan School District Science Research Intern Mentor: Provided oversight of a high school aged summer intern, Kyle Ripp, who successfully analyzed comet Hyakutake [O I] 6300 Å image data.
Summer 2000	NASA SHARP plus program mentor: Provided oversight of high school aged summer intern, Michelle Krok, who successfully analyzed comet Hyakutake [O I] 6300 Å spectral data.
Spring 2000	Lecturer, Department of Astronomy, University of Wisconsin–Madison: Taught Astronomy 104: *Our Exploration of the Solar System* http://wisp.physics.wisc.edu/astro104. Responsible for syllabus, lectures, web-based lecture notes, homework, exams, projects, honors section, and oversight of TA Nathan Miller (Text: *Universe*, Kaufmann & Freedman, 5th ed).
Spring 1999	Assistant Senior Thesis Advisor, Physics Department, University of Wisconsin–Madison: Provided training in software and data analysis techniques to senior thesis student Andrew Steffl, who successfully analyzed Adaptive Optics images of Io and its atmosphere.
1991–1998	Graduate Research Assistant, University of Wisconsin–Madison (McCammon): Helped supervise approximately one dozen undergraduate hourly workers in tasks such as fine wire manipulation, plating and stripping metal coatings, circuit design, computerized data recording, and UNIX system management.
1990–1991	Teaching Assistant, University of Wisconsin–Madison Physics Department: Conducted discussion and lab sections in introductory physics.

Skills:

UNIX system management, computer network administration, network backups
Low-noise, low-frequency analog electronics fabrication and design, micro-electronics packaging
Cryogenic systems, CAD design, machining, optical instrument design and fabrication
McMath-Pierce Solar Telescope and echelle spectrograph operation
WIYN 0.9 m telescope and MOSAIC imager operation
Computer programming languages: IDL, C, FORTRAN, LISP, Pascal, BASIC

Honors and Awards:

1996	Goddard Space Flight Center Group Award
1993	Department of Education Fellowship
1989	Sigma Pi Sigma Physics Honor Society

References:

Research: Dr. Ronald Oliversen Ronald.Oliversen@nasa.gov (301) 286-6290
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Ronald H. Brown Middle School, 4800 Meade St., N.E., Washington, D.C. 20019

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Teaching: Mr. Andrew Steffl steffl@colorado.edu (303) 492-3617
Astronomy and Planetary Sciences, U. of Colorado, Campus Box 392, Boulder, CO 80309

Research: Dr. Wilton Sanders sanders@physics.wisc.edu (608) 262-5916
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Publications:

Glinski, R. J., Ford, B. J., Harris, W. M., Anderson, C. M., & Morgenthaler, J. P., *Oxygen/Hydrogen Chemistry in the Inner Comae of Active Comets*, Astrophys. J., in press, 2003.

Morgenthaler, J. P., Harris, W. M., Scherb, F., Roelser, F. L., Anderson, C. M., Doane, N. E., & Oliversen, R. J., *The Gas Production Rate and Coma Structure of Comet C/1995 O1 (Hale-Bopp)*, Earth, Moon, Planets, Vol. 90, p. 77–87, 2002.

Morgenthaler, J. P., Harris, W. M., Scherb, F., Doane, N. E., & Oliversen, R. J., *Velocity-Resolved Observations of Hα Emission from Comet C/1995 O1 (Hale-Bopp)*, Earth, Moon, Planets, Vol. 90, p. 89–97, 2002.

Harris, W. M., Morgenthaler, J., Mierkiewicz, E., Scherb, F., Oliversen, R., & Nordsieck, K., *Evidence for Collisional Effects in the Radial Distributions of* OH *and* C *in the Coma of C/1995 O1 (Hale-Bopp)*, Earth, Moon, Planets, Vol. 90, p. 45–56, 2002.

Oliversen, R. J., Doane, N. E., Scherb, F., Harris, W. M., & Morgenthaler, J. P., *Measurements of* [C I] 9850 Å *Emission from Comet Hale-Bopp*, Astrophys. J., Vol. 581, No. 1, p. 770–775, 2002.

Harris, W. M., Scherb, F., Mierkiewicz, E. J., Oliversen, R. J., & Morgenthaler, J. P., *Production, Outflow Velocity, and Radial Distribution of* H_2O *and* OH *in the Coma of Comet C/1995 O1 (Hale-Bopp)*, Astrophys. J., Vol. 578, p. 996-1008, 2002.

McCammon, D., Almy, R., Apodaca, E., Bergmann Tiest, W., Cui, W., Deiker, S., Galeazzi, M., Juda, M., Lesser, A., Mihara, T., Morgenthaler, J. P., Sanders, W. T., Zhang, J., Figueroa-Feliciano, E., Kelley, R. L., Moseley, S. H., Mushotzky, R. F., Porter, F. S., Stahle, C. K., & Szymkowiak, A. E., *A High Spectral Resolution Observation of the Soft X-Ray Diffuse Background with Thermal Detectors*, Astrophys. J., Vol. 576, p. 188-203, 2002.

Morgenthaler, J. P., Harris, W. M., Scherb, F., Anderson, C. M., Oliversen, R. J., Doane, N. E., Combi, M. R., Marconi, M. L., & Smyth, W. H., *Large Aperture* [O I] 6300 Å *Photometry of Comet Hale-Bopp: Implications for the Photochemistry of* OH, Astrophys. J., Vol. 563, p. 451–461, 2001.

Oliversen, R. J., Scherb, F., Smyth, W. H., Freed, M. E., Woodward, R. C., Marconi, M. L., Retherford, K. D., Lupie, O. L., & Morgenthaler, J. P., *Sunlit Io Atmospheric* [O I] 6300 Å *Emission and the Plasma Torus*, J. Geophys. Res., Vol. 106, No. A11, p. 26183–26193, 2001.

Sanders, W. T., Edgar, R. J., Kraushaar, W. L., McCammon, D., & Morgenthaler, J. P., *Spectra of the 1/4 keV X-ray Diffuse Background from the Diffuse X-Ray Spectrometer Experiment*, Astrophys. J., Vol. 554, p. 694–709, 2001.

Morgenthaler, J. P., *The Study of the Diffuse X-ray Background between 150 eV and 280 eV with the Diffuse X-ray Spectrometer (DXS)*, Ph.D. thesis, University of Wisconsin–Madison, 1998.

Sanders, W. T., Edgar, R. J., Liedahl, D. A., & Morgenthaler, J. P., *The Soft X-ray Background Spectrum from DXS*, in Lecture Notes in Physics, Vol. 506 (Berlin: Springer-Verlag), p. 83, 1998.

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Cui, W., Almy, R., Deiker, S., McCammon, D., Morgenthaler, J. P., Sanders, W. T., Kelley, R. L., Marshall, F. E., Moseley, S. H., Stahle, C. K., & Szymkowiak, A. E., *Sounding Rocket Experiment Employing Microcalorimeter Detectors to Obtain a High-Resolution Spectrum of the Diffuse X-ray Background*, Proceedings of SPIE, Vol. 2280, p. 362, 1994.

McCammon, D., Cui, W., Juda, M., Morgenthaler, J. P., Zhang, J., Kelley, R. L., Holt, S. S., Madejski, G. M., Moseley, S. H., & Szymkowiak, A. E., *Thermal Calorimeters for High Resolution X-ray Spectroscopy*, Nucl. Instrum. Methods Phys. Res., Sect. A, Vol. 326, p. 157, 1993.

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